DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Ave NE., P.O. BOX 90012
BELLEVUE, WA 98009-9012

OPTIONAL DETERMINATION OF NON-SIGNIFICANCE (DNS) NOTICE MATERIALS

The attached materials are being sent to you pursuant to the requirements for the Optional DNS Process (WAC 197-11-355). A DNS on the attached proposal is likely. This may be the only opportunity to comment on environmental impacts of the proposal. Mitigation measures from standard codes will apply. Project review may require mitigation regardless of whether an EIS is prepared. A copy of the subsequent threshold determination for this proposal may be obtained upon request.

File No.	13-112260-LO
Project Name/Address:	2013-2016 Storm and Surface Water Programmatic In-Stream Sediment and Debris Removal and Vegetation Management City-owned Storm and Surface Water Facilities
Planner:	Kevin LeClair
Phone Number/Email:	425-452-2928 / kleclair@bellevuewa.gov
Minimum Comment Period:	**May 30, 2013**

Materials included in this Notice:

- ☒ Blue Bulletin
- ☒ Checklist
- ☐ Vicinity Map
- ☒ Plans: 2013 Storm &Surface Water In-Stream Sediment & Debris Removal Programmatic Permit Maintenance Standards
- ☒ Other: Attachment F: Lake Hills Greenbelt Brushing Diagram

City of Bellevue Submittal Requirements | **27a**

ENVIRONMENTAL CHECKLIST

5/15/13

If you need assistance in completing the checklist or have any questions regarding the environmental review process, please visit or call the Permit Center (425-452-6864) between 8 a.m. and 4 p.m., Monday through Friday (Wednesday, 10 to 4). Our TTY number is 425-452-4636.

BACKGROUND INFORMATION

Proposal is being reviewed under permit # 13-112260-LO. Reviewer is Kevin LeClair SEPA and Critical Areas Permit Comments can be sent to kleclair@bellevuewa.gov

Property Owner: City of Bellevue Utilities

Proponent: City of Bellevue Utilities

Contact Person: Don McQuilliams, Storm and Surface Water Superintendent
(If different from the owner. All questions and correspondence will be directed to the individual listed.)

Address: 2901 115th Ave NE. Bellevue, WA. 98004

Phone: (425) 452-7865

Proposal Title: 2013-16 Storm & Surface Water in-stream sediment, debris, and vegetation management programmatic maintenance.

Proposal Location: Multiple locations around the City
(Street address and nearest cross street or intersection) Provide a legal description if available.

Please attach an 8 ½" x 11" vicinity map that accurately locates the proposal site.

Give an accurate, brief description of the proposal's scope and nature:

1. General description: Removal of sediment from maintained Stormwater outfalls and sediment collection facilities. Also includes removal of debris blockages that impair Stormwater function of facilities and removal of vegetation (grasses and other weeds) to allow for improved flow and phosphorus reduction.

2. Acreage of site: Varies but a typical site is less than a ¼ acre; and exception to this is the LHGB brushing site at approximately 2 acres.

3. Number of dwelling units/buildings to be demolished: 0

4. Number of dwelling units/buildings to be constructed: 0

5. Square footage of buildings to be demolished: 0

6. Square footage of buildings to be constructed: 0

7. Quantity of earth movement (in cubic yards): Annual sediment removal maintenance ranges from 1500-5500 cubic yards.

8. Proposed land use: Remain as Stormwater facilities

9. Design features, including building height, number of stories and proposed exterior materials: N/A

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10. Other

Estimated date of completion of the proposal or timing of phasing: Work is typically conducted annually from June through September depending on the location. Emergency actions are sometimes taken during the rainy season between October – May.

Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. Updates to the work areas are adjusted as needed before the renewal of permits.

List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. 2013 Storm & Surface Water in-stream sediment & debris removal programmatic permit maintenance standards. The city has also prepared basin report cards and stream fish use inventories that inform the use of maintenance practices for each site.

Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. List dates applied for and file numbers, if known. Current permits related to this renewal are the existing Land Use permit # 10-109363XD and HPA 123866-1.

List any government approvals or permits that will be needed for your proposal, if known. If permits have been applied for, list application date and file numbers, if known. City of Bellevue Land Use permit and the existing HPA. The City of Bellevue Development Services Department will issue an "over the counter" development permit for each program action, that will document the on-site inspections by qualified staff, ensuring adherence to stated BMPs.

Please provide one or more of the following exhibits, if applicable to your proposal.
(Please check appropriate box(es) for exhibits submitted with your proposal):

☐ Land Use Reclassification (rezone) Map of existing and proposed zoning

☐ Preliminary Plat or Planned Unit Development
Preliminary plat map

☐ Clearing & Grading Permit
Plan of existing and proposed grading
Development plans

☐ Building Permit (or Design Review)
Site plan
Clearing & grading plan

☐ Shoreline Management Permit
Site plan

The City of Bellevue has issued a programmatic clearing and grading permit with SEPA in the past to cover the sediment removal work described in program plan. This proposal expands the scope to also include periodic management of beaver dams that are impacting city facilities and the removal of select vegetation along the banks of Kelsey Creek where it flows in ditches through the Lake Hills Greenbelt Open Space.

A. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site: ☐ Flat ☐ Rolling ☐ Hilly X Steep slopes ☐ Mountains ☐ Other

b. What is the steepest slope on the site (approximate percent slope)? Several of the outfalls are within areas of steep slopes.

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c. What general types of soil are found on the site (for example, clay, sand, gravel, peat, and muck)? If you know the classification of agricultural soils, specify them and note any prime farmland. Generally sand, gravel and organic muck is removed from the sites.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. At some of the locations, there are active areas of erosion adjacent or nearby. These sites are evaluated on a case by case basis.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill. Sediment is removed to provide conveyance or capacity for Stormwater facilities to function as designed.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. Appropriate BMP's are put into place to reduce erosion potential at each site.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? None

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: Each site uses different erosion control BMP's. These are outlined in the attached maintenance standards.

The proposal is required to adopt a programmatic CSWPPP and have CSWPPP addendums on site for each specific action.

2. AIR

a. What types of emissions to the air would result from the proposal (i.e. dust, automobile odors, and industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known. General construction exhaust from heavy equipment.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. No

c. Proposed measures to reduce or control emissions or other impacts to the air, if any: None other than ensuring equipment is in good working condition and that all filters are installed and maintained.

3. WATER

a. Surface

(1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. Yes, all sites are either in-stream facilities or nearby a stream.

(2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If Yes, please describe and attach available plans. Yes, most of the sites are within the water body.

(3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. Annual sediment removal amounts range from 1500-5500 cubic yards. The source is sediment from Stormwater transport.

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(4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. Stream bypass is common as a BMP to prevent erosion and turbidity.

Stream bypass BMPs are included in the attached programmatic plan.

(5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. Yes at some locations.

(6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. No

b. Ground

(1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description. No

(2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.) Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. None

c. Water Runoff (Including storm water)

(1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. No new runoff or Stormwater is introduced through this maintenance.

(2) Could waste materials enter ground or surface waters? If so, generally describe. No

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any: BMP's for each site are described in the maintenance standards.

4. Plants

a. Check or circle types of vegetation found on the site:

☐ deciduous tree: alder, maple, aspen, other

☐ evergreen tree: fir, cedar, pine, other

☐ shrubs

☐ grass

☐ pasture

☐ crop or grain

☐ wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other

☐ water plants: water lily, eelgrass, milfoil, other

☐ other types of vegetation

b. What kind and amount of vegetation will be removed or altered? The only site that has significant vegetation removal is the LHGB brushing site where canary

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reed grass and invasive vegetation is removed along the banks of Kelsey creek.

c. List threatened or endangered species known to be on or near the site. There are no know threatened or endanger plant species know to be on or near one of the various maintenance sites.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: None

Significant trees and desirable native riparian plants are not intended to be removed. If there removal is planned, then remediation will be expected.

5. ANIMALS

a. Check or circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

- ☐ Birds: hawk, heron, eagle, songbirds, other:
- ☐ Mammals: deer, bear, beaver, bats other:
- ☐ Fish: bass, salmon, trout, shellfish, other:

b. List any threatened or endangered species known to be on or near the site. Salmon species

c. Is the site part of a migration route? If so, explain. Anadromous salmon do migrate through some of the facilities that are managed by the Storm and Surface Water Management Program.

d. Proposed measures to preserve or enhance wildlife, if any: Work is done during the fish window defined in the HPA permit & the City Biologist is consulted as needed.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy need? Describe whether it will be used for heating, manufacturing, etc. Standard gasoline and diesel fuel is used to operated equipment used to perform the maintenance.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. No

c. What kinds of energy conservation features are included in the plans of the proposal? List other proposed measures to reduce or control energy impacts, if any: None

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. It is possible that a piece of equipment could have a spill. The program does have spill response protocols included in the BMPs.

(1) Describe special emergency services that might be required. None

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(2) Proposed measures to reduce or control environmental health hazards, if any. Inspection of all equipment that enters the stream area. Equipment is expected to arrive clean and free of debris so it is easily inspected.

b. Noise

(1) What types of noise exist in the area which may affect your project (for example, traffic, equipment, operation, other)? None

(2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example, traffic, construction, operation, other)? Indicate what hours noise would come from the site. Normal construction noise from heavy equipment will occur during normal working hours.

(3) Proposed measures to reduce or control noise impacts, if any: None

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Stormwater facilities

b. Has the site been used for agriculture? If so, describe. The LHGB site is used for agriculture on a limited basis to farm flowers and produce. The City Parks department manages the site and is aware of our maintenance.

c. Describe any structures on the site. Some sites have engineered bypass and Stormwater control facilities.

d. Will any structures be demolished? If so, what? No

e. What is the current zoning classification of the site? Various

f. What is the current comprehensive plan designation of the site? Various

g. If applicable, what is the current shoreline master program designation of the site? N/A

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify. Most of the sites are within sensitive areas as defined by the City.

I. Approximately how many people would reside or work in the completed project? None

j. Approximately how many people would the completed project displace? None

k. Proposed measures to avoid or reduce displacement impacts, if any: None

i. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: None

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. None

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. None

c. Proposed measures to reduce or control housing impacts, if any: None

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? N/A

b. What views in the immediate vicinity would be altered or obstructed? None

c. Proposed measures to reduce or control aesthetic impacts, if any: None

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? None

b. Could light or glare from the finished project be a safety hazard or interfere with views? No

c. What existing off-site sources of light or glare may affect your proposal? None

d. Proposed measures to reduce or control light or glare impacts, if any: None

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity? A few sites have hiking trails adjacent.

b. Would the proposed project displace any existing recreational uses? If so, describe. No, pedestrians are escorted through work zones in the sites that have adjacent trails.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: Traffic control plans account for these impacts.

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe. None known

b. Generally describe any landmarks or evidence of historic, archeological, scientific, or cultural importance known to be on or next to the site. None known

c. Proposed measures to reduce or control impacts, if any: None

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any. Various

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop? N/A

c. How many parking spaces would be completed project have? How many would the project eliminate? None

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not Including driveways? If so, generally describe (indicate whether public or private). No new streets

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. N/A

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur. None

g. Proposed measures to reduce or control transportation impacts, if any: None

15. Public Services

a. Would the project result in an increased need for the public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe. No

b. Proposed measures to reduce or control direct impacts on public services, if any. None

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other. Various

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. No new utilities

Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature..... Mark Cross .....

Date Submitted..... May 15, 2013 .....

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2013

Storm & Surface Water In-Stream Sediment & Debris Removal Programmatic Permit Maintenance Standards

Don McQuilliams, Superintendent
Storm & Surface Water Section
Bellevue Utilities Department
5/6/2013

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Background

The Storm and Surface Water section of the Bellevue Utilities Department maintains many in stream sedimentation collection facilities throughout the City. These facilities range from culvert ends, pipe inlets and flow control stations to large regional ponds. Dependent on the particular design, these faculties help to control storm and surface water conveyance, trap sediment, enhance water quality and provide storage as waters move through the system.

Past practices of the Storm and Surface Water section was to initiate several permits each year that would allow for the removal of sediment from these facilities. In 2008, a programmatic permit was developed that combined many of these facilities into one permit and limited the amount of sediment that could be removed in any given year. This approach worked well but it was found in 2009 that quantities needed to be updated to achieve the desired effect/purpose of several facilities which was difficult to do on short notice.

In addition to managing in stream sediment removal locations, the Storm & Surface Water Utility also manages several Beaver dams each year to prevent flooding of nearby structures and roadways and removes overgrown vegetation from the banks of Kelsey Creek through the Lake Hills Greenbelt to maintain flow and aide in the control of phosphorus loading.

This document identifies those sites that are maintained on a regular basis and establishes maximum quantities of materials that need to be removed in order for the facility to function as designed. In addition, this document provides provisions for easily updating and/or adding new locations dependent on the design type and function.

Inspection & Maintenance Procedures

The Utilities department utilizes Maximo software to manage the assets and associated work orders required for inspection and maintenance. Each site represents a Stormwater facility or infrastructure that is assigned an asset number and tracked through the Maximo system. As annual inspections are conducted, the results of the inspections are entered into Maximo for record keeping/reporting purposes and associated maintenance work orders are generated by the user if follow up actions need to occur.

Maintenance actions vary for each site dependant on the type of infrastructure that is present at the site. The following is a list of infrastructure types associated with this permit and general actions necessary to properly maintain the infrastructure:

- Detention ponds – NPDES mandates maintenance occur within 12 months after an inspection reveals sediment levels greater than 6 inches in depth or 10% of the designed pond capacity.
- Sedimentation ponds – Cleaned based on sediment levels and historical loading levels. The Coal Creek sedimentation ponds are required to be cleaned annually by legal obligations.
- Pipe ends/culverts – Inlets & outlets are kept free of debris and sediment. Sediment is cleared from around the outlet if buildup has occurred.
- Flow stations – Kept free of debris and sediment as necessary to function as designed.
- High flow bypass inlets/outlets - Inlets & outlets are kept free of debris and sediment. Sediment is cleared from around the outlet if buildup has occurred.
- Ditches/open stream – Sediment, vegetation and debris is removed as buildup occurs that impedes flow.
- Beaver dams – Beaver dams are removed or breached to prevent flooding of structures or roadways as defined in the Utilities Beaver Intervention SOP (Attachment 'F').

- Brush control – Kelsey creek through the Lake Hills Greenbelt has the Canary reed grass and other invasive vegetation removed from its banks each year to maintain flows through the greenbelt and to reduce phosphorus loading to the stream.

Attachment 'E' – The Stormwater Management Manual for Western Washington; Volume V, Section 4.6 has been attached to describe in detail, the maintenance requirements set for by the DOE.

General Work Methods

Sediments removal is typically conducted using Vactor trucks and/or backhoe/excavator and hand work. The anticipated excavation method used at each site and quantities to be removed is noted in Attachment A. Methods may vary depending on site conditions and access at the time of work. The following conditions will apply to each site:

- Excavated material will be limited to streambed sediment and detention pond accumulations that adversely affect stormwater management. Excavation quantities listed in attachment A indicate the maximum cubic yards to be removed under this permit. Removal of any additional material will require prior authorization through Development Services as outlined in the 'Unanticipated Workload' section of this proposal below.
- No trees greater than 4 inches in diameter will be removed as part of this project without prior approval/notification through the programmatic permit process for clearing and grading in critical areas. Vegetation removal of grasses and shrubs may also be necessary either for access purposes or because the vegetation is within the work area. Vegetation removal will be kept to a minimum and all native vegetation outside of work/access areas will be restored as soon as reasonably possible upon completion as outlined in Bellevue Land Use Code 20.25H.220H..
- Fish exclusion and stream bypass procedures will be put into place prior to any sediment removal operations.
- Erosion control will be placed as needed around the work site and equipment. Installation and monitoring of erosion control will be conducted by a CESCL (Certified Erosion and Sediment Control Lead) throughout the duration of the project. A listing of approved BMP methods can be found within the 'Regional Road Maintenance Endangered Species Act Program Guidelines' document developed as a Tri-County effort that addresses common BMP methods. The guidelines are available by request or in their entirety online at: http://www.kingcounty.gov/transportation/kcdot/Roads/environment/RegionalRoadMaintenanceESAGuidelines/ESAProgramGuidelines.aspx
- Daily turbidity monitoring will be conducted upstream and downstream of each site prior to work beginning and at least once per day while work is ongoing.

Sediment Removal Methods

One or more of the following methods will be implemented to remove sediment from each work site outlined in Attachment A. Method(s) to be used at each site are indicated in Attachment A under the column heading of 'Sediment Removal Method(s)'.

- Vactor (Eductor) – Indicates removal of sediment to be conducted with the use of a Vactor (Eductor) truck capable of vacuuming sediment directly from the site into a storage tank on the truck. Water accumulated through this process will be typically decanted onsite with filtration BMP's utilized before the water is allowed to re-enter the stream. Sediment accumulated will be disposed of as outlined in the Sediment Management Plan section of this document.

- Excavator – Indicates removal of sediment from the site through the use of an excavator or backhoe. Sediment will be deposited directly into awaiting dump trucks or temporarily stockpiled to allow water within the sediment to drain off. All stockpiled materials will have approved BMP measures in place to prevent sediment laden waters from re- entering the site. Excavator operators will evaluate the site for access, enter and exit the site in a manner to prevent unnecessary damages to vegetation and stream banks and grade any ruts or other potential erosion concerns upon completion of the work.
- Hand Work – In certain circumstances, hand work will be necessary to accomplish the job. This typically entails brushing of grasses, blackberries or other shrubs to clear the work zone prior to excavation or vactor activities. Hand work of this type will be restricted to the work area itself and all efforts will be taken to minimize unnecessary damages to surrounding vegetation. BMP's as needed will be utilized if the work bears erosion concerns to adjacent waters.

Construction Sequence

The following sequence of events summarizes the proposed activities required to accomplish these projects.

1. Delineate the extent of the project site.
2. Field locate Utilities.
3. Install WDFW approved fish exclusion block nets at upper and lower extremes of each stream reach,
4. Install erosion control measures as needed around work site.
5. Conduct fish exclusion by electro-fishing, and by dragging a seine through the stream reach to remove trapped fish.
6. Construct a temporary plastic lined sandbag dike across the reach approximately upstream of the work area.
7. Set-up pumps and layout discharge piping for stream by-pass system as necessary. Discharge areas will ensure filtration through natural vegetation and/or the use of an approved bypass channel. Additional erosion control will be installed as needed.
8. Route the stream through the bypass system.
9. Allow the by-passed reach to naturally dewater.
10. Stage small backhoe/excavator and Vactor trucks as needed on existing paved or graveled surfaces (as available) adjacent to each work area.
11. Remove the permitted volume of accumulated sediments.
12. Turbidity monitoring will be conducted during sediment removal operations. This will be done according to City of Bellevue Turbidity Monitoring Requirements (copy attached).
13. Remove the temporary sandbag dike and all materials used to construct the by-pass to allow the stream to return to its channel.
14. Observe stream flow through the area of sediment removal to confirm free unhindered flow through the area impacted by construction.
15. After continuous free flow is achieved through the construction area, the downstream and upstream block nets may be removed.
16. Photo document before and after conditions for activity record keeping.

Sediment Management Plan

Projects performed under this permit will generate stream sediments and a small quantity of vegetation that require management and off-site disposal. The following methods and actions will be employed to assure that materials are properly managed.

1. All removed sediment will be either loaded directly into awaiting dump trucks, vactor storage tanks or temporarily stockpiled for dewatering purposes. Stockpiled sediment will have appropriate BMP's

in place to filter runoff from the dewatering process before it is allowed to re-enter the surface water system.
2. Sediments will be removed from the dewatered streambed using a small backhoe/excavator or Vactor trucks. The specific method to be used at each site is listed in Attachment A.
3. Vehicles will be staged on paved or graveled surfaces as available. Backhoes and Vactor truck hoses and tubes are capable of reaching the excavation area at each site from the paved or graveled surface.
4. Removed sediments will be loaded directly into awaiting dump trucks or Vactor truck holding tanks.
5. Run-off from the vehicle staging and loading areas will be treated with appropriate BMP's before it is discharged back into the surface water system. Adjacent storm drains will be protected with geofabric to prevent silt from entering.
6. Removed sediments will be transported off site for disposal at an approved recycling/disposal facility or utilized for onsite improvements with prior approval from DSD staff.

Fish Exclusion Plan

Sediment removal activities at the In-Stream Detention facilities and other locations where fish have been identified, requires diverting the stream, dewatering the construction area and the implementation of measures to exclude and remove fish from the reach. BMPs to minimize or reduce impacts to aquatic resources will be implemented. Fish exclusion work prior to dewatering will be performed in accordance with the WDFW Hydraulic Project Approval issued to the City of Bellevue Utilities Department. A copy of the permit will be kept in the possession of the field personnel during fish exclusion and collection activities.

1. Bellevue Utilities trained staff will perform fish exclusion.
2. Field notes will be maintained that describe the activities performed and may also include information such as date, personnel, time, general site conditions, weather, length of stream reach, methods used, and any other general comments.
3. Any injuries or mortalities during fish exclusion will be documented and reported if it involves an ESA-listed species. Contact with an ESA-listed species during fish exclusion activities will be documented and reported to the Services.
4. Block nets will be installed a minimum of 30 ft upstream and downstream of the work area that isolate and exclude fish from entering the entire affected stream reach.
5. Block net mesh size will be the same as the seine nets (9.5 millimeters stretched). Block nets will be installed and secured across the channel and up both banks sufficiently to withstand unforeseen rain events or debris accumulation.
6. Block nets within the stream channel will be supported at 3 ft intervals using stakes or metal fence posts.
7. Block nets will be monitored by the project manager throughout the duration of the project. Block nets will be visually inspected before work starts each day, at mid-day and prior to daily shutdown.
8. Block nets will be left in place throughout the maintenance activity and maintained to ensure proper function.
9. After the stream reach has been isolated, electro shocking and seine nets will be used to remove fish from the work area.

Stream By-Pass

10. A temporary plastic lined sandbag dike will be constructed across the reach approximately 20 feet upstream of the work area and downstream of the fish block net.
11. A pump inlet will be located below the upstream block net and equipped with a 1/8-in mesh screen to prevent fish intake.
12. The stream reach will be visually inspected for the presence of fish prior to dewatering the reach.

13. The affected reach shall be dewatered slowly while observing for aquatic vertebrates. Any observed fish will be captured using hand-held dip nets and transferred immediately to the creek below the downstream block net.
14. Block nets will only be removed following completion of all sediment removal and re-establishment of permanent flow through the area where sediments were removed.
15. Block nets will be removed with care and checked for aquatic vertebrates.

Beaver Dam Removal and/or Breaching Methods

1. Each beaver dam site will be evaluated for flooding concerns, blockages to listed species migration routes and/or a dangerous situation being created from falling trees. In general, the City will only take action on those dams that are either located on public property or directly impact public property. Private Dam locations only affecting private properties will be referred to the property owner.
2. Set up bypass or erosion control devices to prevent downstream turbidity.
3. Removal and/or breaching of the dam is to be done as near to as possible in 6 inch lifts evenly distributed across the entire site.
4. Adequate time will be allowed between each lift for water levels to lower, minimizing surging flows downstream.
5. All material from the removal and/or breaching efforts will be removed from the site.
6. After the work is completed and turbidity levels are within the acceptable range, erosion control devices may be removed.

Vegetation removal within the Lake Hills Greenbelt

Canary reed grass is abundant within the channel of Kelsey creek as it flows through the Lake Hills Greenbelt. The LHGB is also quite flat and flow rates are slow. In an effort to keep the stream flowing and to reduce the amount of phosphorus loading associated with decaying vegetation; the grass and associated invasive vegetation located along the banks is cut back each year. All cuttings are removed from the site and any invasive vegetation found is placed into garbage bags to help prevent spreading of the seeds.

Erosion control is conducted as needed throughout the site but typically the stream is dry or nearly dry during the work window and erosion control is not necessary. Before the work is conducted each year, the stream is walked by staff to locate any areas that will require additional attention.

Turbidity Monitoring Plan

Water quality samples will be taken prior to and during the project. Sampling will be performed by trained and experienced City staff. Samples will be taken and predetermined location above the area of work and downstream in accordance with the City of Bellevue Turbidity Monitoring and Requirements.

Unanticipated Workload Procedures

On occasion, work sites not identified on Attachment 'A' will require minor maintenance work to ensure the Storm and Surface Water system functions as designed. Since activities under this permit are generally limited to seasonal restrictions within the fish window (June 15th – August 31st), time can play a critical factor in ensuring that the work is done as allowed under all associated permits.

Should these circumstances arise, the Storm and Surface Water section will work directly with Development Services Planners and Inspectors to provide all necessary information to perform the minimum necessary work required. These procedures, at a minimum, will contain:

- An email at least 72 hours ahead of scheduled work to the Development Services representative and the Clear and Grade inspector informing them of the location, type of facility and quantity of

material to be removed and reason for unanticipated work. This will not be the approval for work to be conducted. Notification must be provided in written form, letter or email, indicating the work is approved.
- Notification and approval from WDFW in written form, letter or email, indicating that the work has been reviewed and approved under the existing HPA.

Update Process

Attachment 'A' is a list of known in stream sediment & debris removal sites that are subject to the City's Clear and Grading requirements within a critical area. These sites are also subject to conditions as they apply under the Washington State Fish and Wildlife Hydraulic Approval Permit.

At the beginning of each calendar year, an opportunity to update Attachment 'A' will be available by submitting a revised version of the list with the City Planning Department representative and with WDFW. This revision does not indicate approval until all parties have responded via an email or letter that the revisions to the work have been approved.

Notification Process

Prior to conducting work, a pre conference meeting will be held annually with clear and grade inspectors and City planners. This meeting will outline the applicable sites where the Storm and Surface Water Utility plans to perform work during the dry work season. At that time, the inspectors and planners will have opportunities to discuss concerns or request additional information as it relates to the upcoming work season. Further site specific notification will be discussed and determined as requested by inspectors and/or planners.

Records & Reporting

Records will be kept within the Maximo database with an annual report generated at the end of the maintenance season for submittal to DSD. Information to be recorded and reported on should include:

- Site inspected and date of inspection
- Sites maintained, date & maintenance actions:
    - Quantity of materials removed from each site
    - Fish capture and relocation records (including, if necessary, fish kill data)
    - Turbidity monitoring results

Storm & Surface Water Staff Credentials/Trainings & Certifications

Bellevue Utilities Storm & Surface Water personnel:

-Dates in parenthesis indicate date of training.
-ISA, Pesticide application & CESCL Certification requires annual CEU's to be earned to maintain certification.
-IDDE investigation reflects staff with training in how to conduct an illicit discharge investigation. Annual renewal/training conducted.
-IDDE awareness reflects staff has knowledge of how to recognize and repot an illicit discharge.
-Stream Repair training was provided by the Watershed Company onsite during project work on Coal Creek. Included Bank stabilization & flow management techniques.

- Don McQuilliams – Superintendent
    - ISA Certified Arborist (1997)

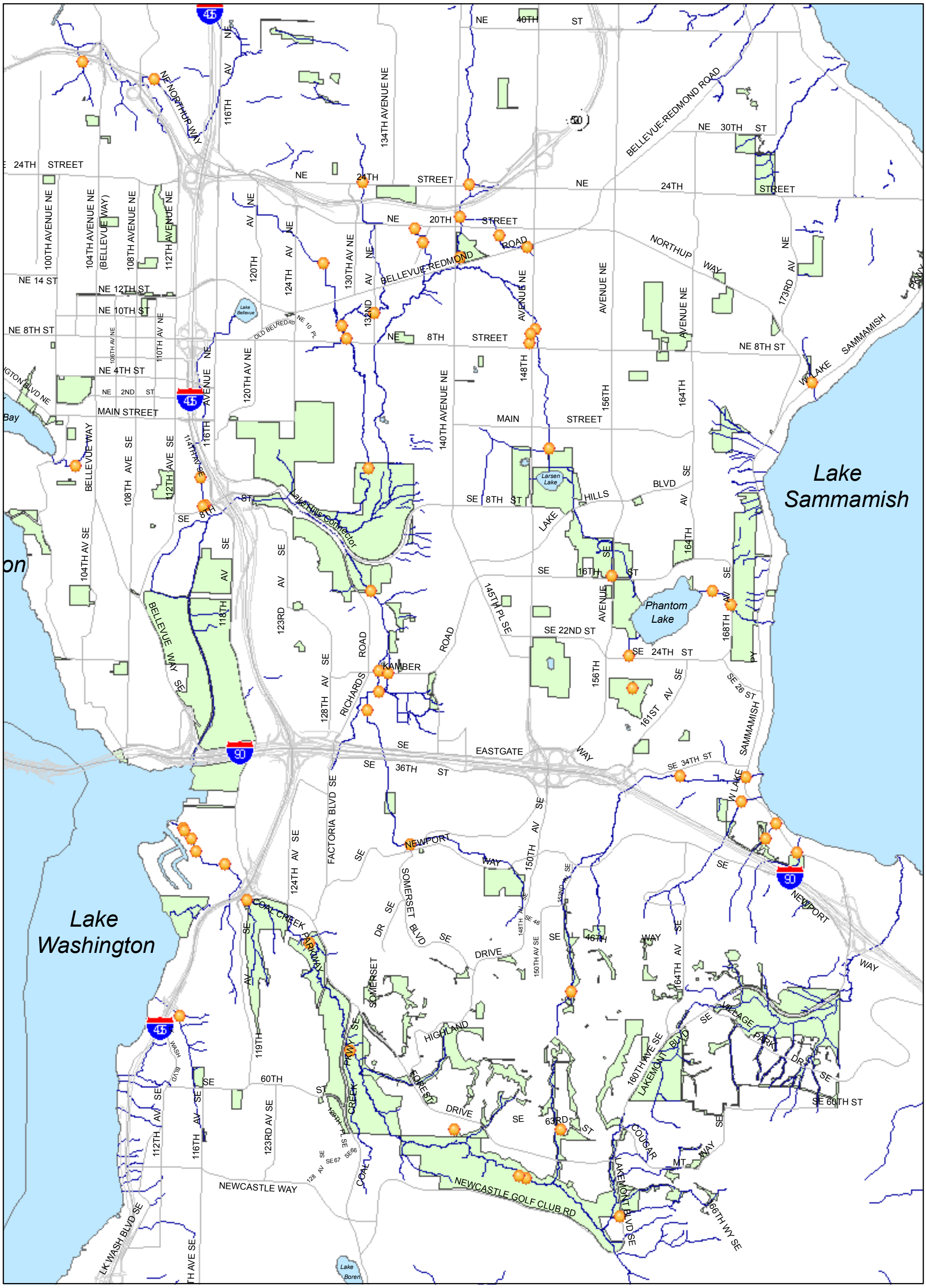
    - Certified Tree Risk Assessor (2006)
    - Certified Erosion and Sediment Control Lead (CESCL) (2009)
    - IDDE Investigation
- Spencer Hillesland – Senior Engineering Technician
    - CESCL (2006)
    - Electrofishing & Fish Exclusion (Course conducted by Smith-Root, Inc. 2007)
    - IDDE Investigation
    - Pesticide applicators license (2007)
- Chad Brown – Technical Specialist
    - CESCL (2007)
    - Fish Exclusion (Introductory course conducted by Smith-Root, Inc. 2007)
- Frank Oriel – Lead Worker (Vaults, Tanks, Ponds and Streams)
    - CESCL (2006)
    - IDDE Investigation
    - Stream Repair (2004)
- Trisha Tyo – Lead Worker (Vactor/Eductor Operations)
    - CESCL (2008)
    - IDDE Investigation
    - Stream Repair (2004)
- Tony Shehab – Lead Worker (Construction and Repair)
    - CESCL (2013)
    - IDDE Investigation
    - Electrofishing & Fish Exclusion (Course conducted by Smith-Root, Inc. 2013)
- Paul Armstrong – Skilled Worker
    - CESCL(2007)
    - Stream Repair (2004)
- Trisha Tyo – Skilled Worker
    - CESCL (2007)
    - IDDE Investigation
- Jeff Peacey – Skilled Worker
    - IDDE Awareness (2009)
- Jerry Campbell – Skilled Worker
    - CESCL (2009)
    - IDDE Investigation
    - Electrofishing & Fish Exclusion (Course conducted by Smith-Root, Inc. 2013)
- William Whiting – Skilled Worker
    - CESCL (2009)
    - IDDE Investigation
- David Ernst – Skilled Worker
    - CESCL (2009)
    - IDDE Investigation
- Casey Peterson – Maintenance Worker
    - CESCL (2012)
    - IDDE Investigation

Attachment 'A' Streams, Detention Pond & Flow Station Maintenance List Updated: April 2013										
Critical Site # or Asset # (Legacy ID)	**HPA Location No.**	**Stream and Description**	**Location**	**Sediment Removal Method**	**Maximum Yds³**	**Applicable BMP(s)**		2010 Yds³	2011 Yds³	2012 Yds³
		Coal Creek								
D502	2	Coal Creek - upper sedimentation facility	Coal Creek Parkway and Coal Creek	Excavator	1600	Cofferdam, Dewatering, Stream bypass		500	1600	1135
D501	1	Coal Creek - regional detention pond	119th Ave Se at Coal Creek. East of I-405.	Excavator	400	Cofferdam, Dewatering, Stream bypass		250	400	170
D503, D504, D505, D506	3	Coal Creek Culverts - Newport Shores	Skagit Key (2 locations), Glacier Key, Newport Key	Vactor	5	Cofferdam, Sandbags, Vactoring				
D512	4	Coal Creek - flow station	Coal Cr. Upstream of the lower Skagit Key crossing.	Vactor	25	Cofferdam, Sandbags, Vactoring				
N/A	42	Coal Creek Tributary on Lakemont Blvd.	Directly North of 7219 Lakemont Blvd. Se	Excavator	50	Cofferdam, Sandbags			50	
DP60152	N/A	Cinder mine Swales – Not In-Stream, noted for Clearing Grading Programmatic Permit.	15000 blk. of Newcastle –Coal Creek Rd Se	Excavator	100	Inlet protection, Soil stabilization		35		
DP 14551	N/A	Detention Facility – Gunnite Pond. – Not In-Stream, noted for Clearing Grading Programmatic Permit.	6218 142nd Ave Se	Excavator	100 (250)	Inlet protection, Soil stabilization		65		
N/A		Coal Creek - Offline sedimentation pond	4641 125th Ave SE	Excavator	1600	Cofferdam, Dewatering, Stream bypass			1600	275
DP 26790	N/A	SE 63rd St Detention Pond - Not In-Stream, noted for Clearing Grading Programmatic Permit.	15251 SE 63rd St	Excavator	500	Inlet protection, Cofferdam, Sandbags				
		Lakehurst Creek								
D508	5	Lakehurst Creek - sedimentation facility	Lake WA Blvd east of I-405 at 112th Ave SE.	Excavator	500	Cofferdam, Dewatering, Stream bypass			300	
		Wilkens Creek								
TR 14742	6	Wilkens Creek – culvert	W Lake Samm Pkwy and about NE 8th St	Excavator	50	Cofferdam, Sandbags				45
		Yarrow Creek								
TR 62070	43	Yarrow Creek – concrete box inlet	Behind 3265 103rd Ave Ne	Vactor	20	Sandbags, Vactoring				
D102	7	Yarrow Creek – culvert	10833 Northup Way	Vactor	25	Cofferdam, Sandbags, Vactoring				
		Meydenbauer Creek								
TR 62090	10	Meydenbauer Creek - culvert	410 102nd Ave SE	Excavator	25	Cofferdam, Sandbags				
		Kelsey Creek								
D209	8	Kelsey Creek - regional detention pond	920 148th Ave Ne	Vactor	25	Cofferdam, Sandbags, Vactoring				
D301	9	Larson Lake - regional detention pond	149th Ave SE Main. St.	Vactor	25	Cofferdam, Sandbags, Vactoring				
N/A		Kelsey Creek Tributary at Lk. Hills Farm	NW corner of SE 16th St & 156th Ave SE	Vactor/Excavator	150	Cofferdam, Dewatering, Stream bypass, Sandbags, Vactoring				
DP 5250	N/A	148th Ave NE & NE 8th St Detention ponds - Not In-Stream, noted for Clearing Grading Programmatic Permit.	NW corner of 148th Ave NE & NE 8th St intersection	Excavator	500	Cofferdam, Dewatering, Inlet protection, Sandbags				
		Kelsey Creek upper basin in Lake Hills Greenbelt								
	NEW/TBD	SE 16th Channel	Channel from SE 16th South 150 feet	Vactor/Hand	150	Cofferdam, Sandbags, Vactoring				
	NEW/TBD	SE 16th Culverts	KC Culvert crossing east of 156th Ave @ SE 16th St	Vactor	25	Cofferdam, Sandbags, Vactoring				

	NEW/TBD	SE 16th/156th Ave SE Culverts	3 Culverts @ the interesetion of 156th Ave SE & SE 16th St	Vactro/Excavator	75	Cofferdam, Sandbags, Vactoring				
	NEW/TBD	156th Ave SE Culverts	KC Culvert crossing @ 156th North of SE 16th St	Vactor	25	Cofferdam, Sandbags, Vactoring				
	NEW/TBD	156th Ave SE Drainage Ditch	Ditchline along the West side of 156th Ave SE between SE 16th St and main channel of Kelsey Creek to the North	Excavator	750	Cofferdam, Sandbags				
	NEW/TBD	Lake Hills Blvd Culverts	KC Culvert Crossing @ Lake Hills Blvd	Vactor/Excavator	100	Cofferdam, Sandbags, Vactoring				
	NEW/TBD	Larsen Lake high Flow Bypass Channel	East of Larsen lake	Excavator	250	Cofferdam, Sandbags				
		Unnamed Tributary to Kelsey Creek								
MH 2790	11	Unnamed Tributary to Kelsey Creek - short section of open stream/easement.	13433 Ne 20th St	Excavator	60	Cofferdam, Dewatering, Inlet protection, Sandbags			110	
PE 63908	12	Unnamed Tributary to Kelsey Creek - culvert at Earth Building	1805 136th Pl NE	Excavator	25	Cofferdam, Dewatering, Inlet protection, Sandbags				
		Kelsey Creek West Tributary								
D213	13	Lower West Trib. – regional detention pond	12820 NE 8th St	Vactor	25	Cofferdam, Sandbags, Vactoring				
D210	14	West Trib. - regional detention pond	1770 124th Ave NE	Excavator	25	Cofferdam, Dewatering, Inlet protection, Sandbags				
N/A		West Trib. - At Kelsey Cr. Park	410 130th Pl Se	Vactor	50	Cofferdam, Dewatering, Stream bypass, Sandbags, Vactoring		50	50	25
D215		West Trib. 120th culvert	2150 120th Ave NE	Vactor/Hand	25	Cofferdam, Sandbags, Vactoring				
		Richards Creek								
PE 17099	15	Richards Creek - culvert	133rd Ave SE & Kamber Rd	Excavator/Vactor	15	Cofferdam, Sandbags, Vactoring				
PE 17100	16	Richards Creek - flow diversion	13309 SE 26th ST	Vactor	15	Cofferdam, Sandbags, Vactoring				
D309	17	Richards Creek - flow station	1640 Richards Rd.	Vactor	25	Cofferdam, Sandbags, Vactoring				
		Unnamed Tributary to Richards Creek (East Creek)								
PE 17092	18	Unnamed Tributary to Richards Creek - culvert	13301 Kamber Rd	Vactor	60	Cofferdam, Sandbags, Vactoring				40
		Sturtevant Creek								
D105	19	Section of creek between I-405 and Mercer slough	SE 8th St	Vactor	25	Cofferdam, Sandbags, Vactoring				
D104	20	Section of creek between I-405 and Mercer Slough	SE 6th St	Vactor	15	Cofferdam, Sandbags, Vactoring				
D107	21	Sturtevant Cr - flow station	SE 6th St	Vactor	15	Cofferdam, Sandbags, Vactoring				
		Sunset Creek								
PE 11276	22	Sunset Creek - culverts	133rd Ave SE & SE 30th St	Vactor	50	Cofferdam, Sandbags, Vactoring		50	60	40
D510	23	Sunset Creek - high-flow bypass	13801 SE Allen Rd	Vactor	15	Cofferdam, Sandbags, Vactoring		15		
		Goff Creek								
D217	24	Goff Creek – regional detention pond	12700 NE 10th St	Excavator	15	Cofferdam, Dewatering, Inlet protection, Sandbags				
PE 4649	25	Goff Creek – culvert	132nd Ave NE north of NE 10th St	Excavator	15	Cofferdam, Sandbags				
D202	26	Goff Creek - trash rack at inlet to high flow by-pass	at NE 24th St east of 130th Ave NE	Vactor	15	Cofferdam, Sandbags, Vactoring				
		Valley Creek								
D203	27	Valley Creek - regional detention pond	14040 NE 24th St	Excavator	50	Cofferdam, Dewatering, Inlet protection, Sandbags				
D205, D206	28	Valley Creek - trash rack at inlet to high flow by-pass	Culverts at NE 20th & 21st Pl east of 140th Ave NE	Excavator	25	Cofferdam, Inlet protection, Sandbags				

D220	29	Valley Creek - flow station	Approx 100ft North of Bel-Red Rd	Vactor	15	Cofferdam, Sandbags				
		Sears Creek								
D208	30	Commissioners Waterway - regional detention pond	Bell Red RD & 148th Ave NE	Vactor	25	Cofferdam, Sandbags, Vactoring		25		
D207	31	Overlake Regional Detention Pond	14433 NE 20th St.	Excavator	100	Cofferdam, Dewatering, Inlet protection, Sandbags				
		Vasa Creek								
PE 64652	32	Vasa Creek - box culvert	SE 35th ST & W Lk Samm Pkwy SE	Vactor	15	Cofferdam, Inlet protection, Sandbags, Vactoring				
		Unnamed Tributary to Vasa Creek								
PE 16033	33	Unnamed Tributary To Vasa Creek -culvert	15217 SE 48th Drive	Vactor	15	Cofferdam, Sandbags, Vactoring				15
PE 30315, PE 30314, PE 29735	34	Vasa Creek Tributary - culverts	167th Ave SE & SE 35th ST	Excavator	15	Cofferdam, Sandbags				
D305	35	Unnamed Stream - stream 0160 - pond and inlet	16903 SE 38TH PL	Excavator	70	Cofferdam, Inlet protection, Sandbags, Vactoring			70	
		Unnamed Stream								
TR 62901	36	Unnamed Stream – culvert	3947 W Lk Samm Pkwy SE	Excavator	30	Cofferdam, Sandbags				
PE 29104	37	Unnamed Stream – culvert	17152 SE 40th PL	Vactor	15	Cofferdam, Sandbags, Vactoring				
PE 30432	38	Unnamed Stream - stream 0161- culvert	4094 W Lk Samm Pkwy SE	Vactor	30	Cofferdam, Sandbags, Vactoring				
		Phantom Lake Basin								
D306	39	Phantom Lake - lake elevation station	Phantom Lake at approx. SE 16th ST	Vactor	25	Cofferdam, Sandbags, Vactoring				
D303	40	Phantom Creek – Lake outfall – flow station	Phantom Creek at SE 17th PL	Vactor	15	Cofferdam, Sandbags, Vactoring				
D307	41	Phantom Creek – Inlet channel to lake – flow station	Phantom Creek at SE 24th St	Vactor	50	Cofferdam, Sandbags, Vactoring				
D304	N/A	Water Quality Pond A - Not In-Stream, noted for Clearing Grading Programmatic Permit.	2645 158th Ave SE	Excavator	250	Cofferdam, Dewatering, Inlet protection, Sandbags			936	
								990	5176	1745

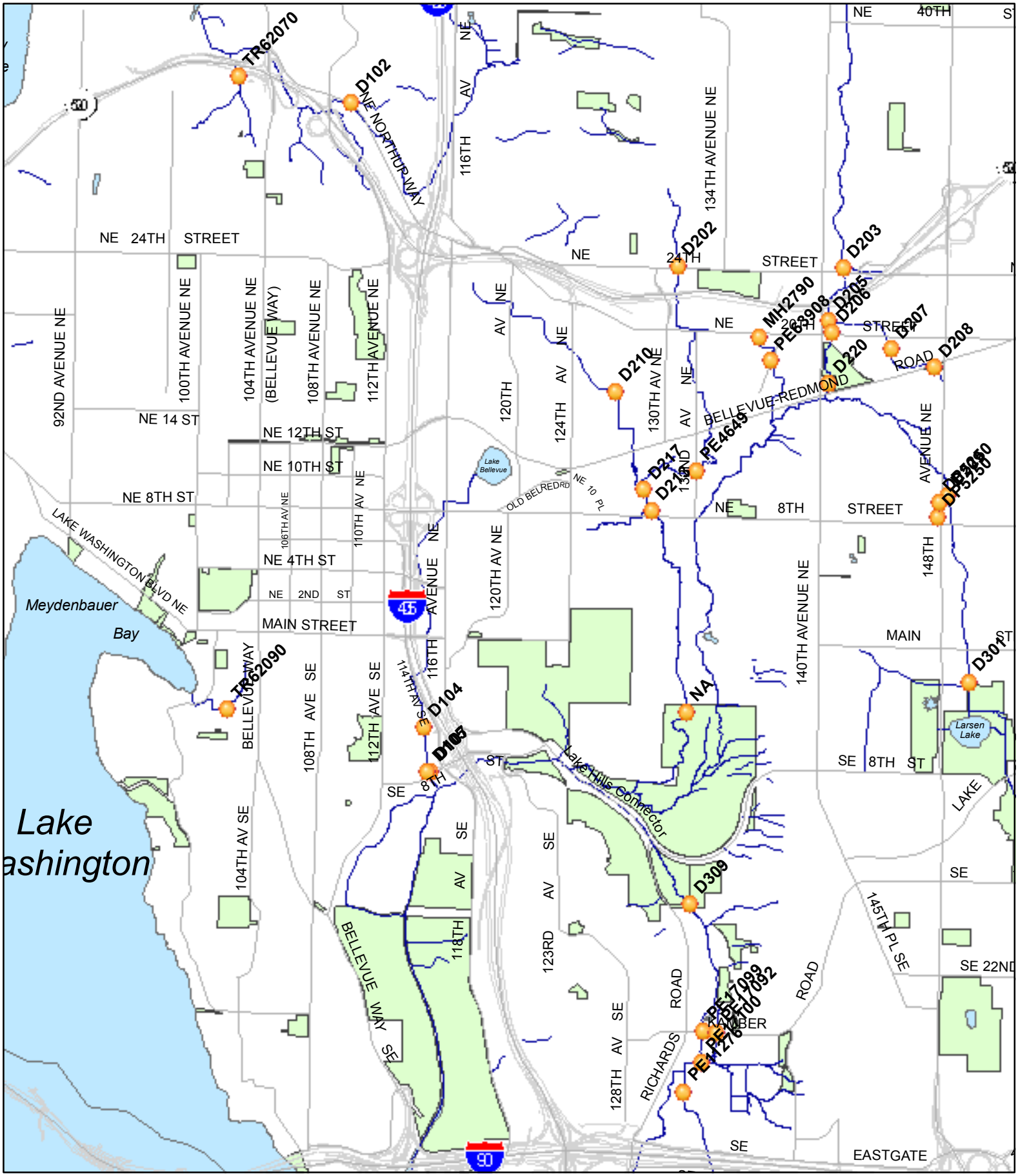
Citywide Sediment Removal Locations



Legend

- Sediment Removal Sites
- Streams
- Parks

N

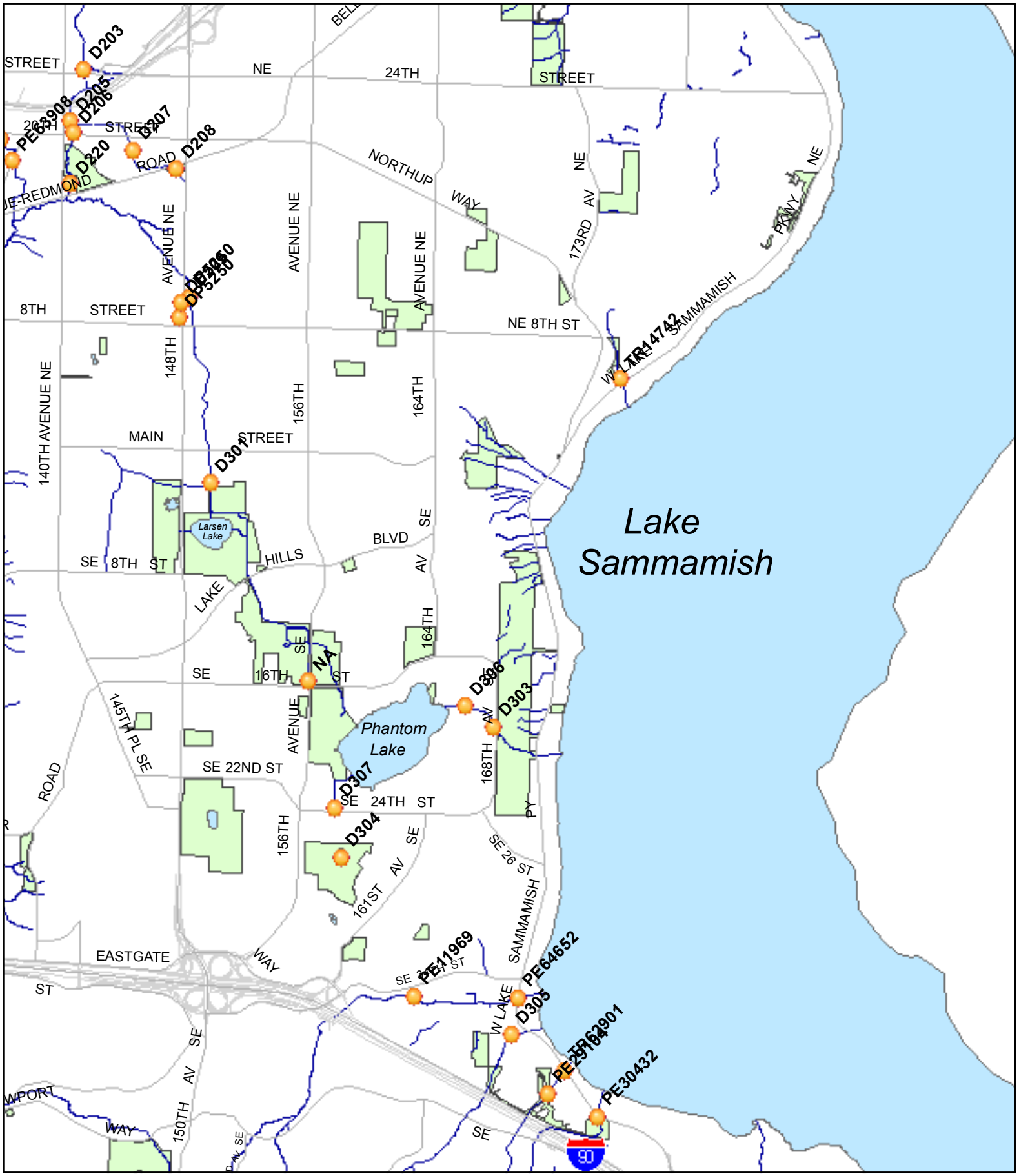


Legend

- Sediment Removal Sites
- Streams
- Parks

Sediment Removal Locations
NW Quadrant

N

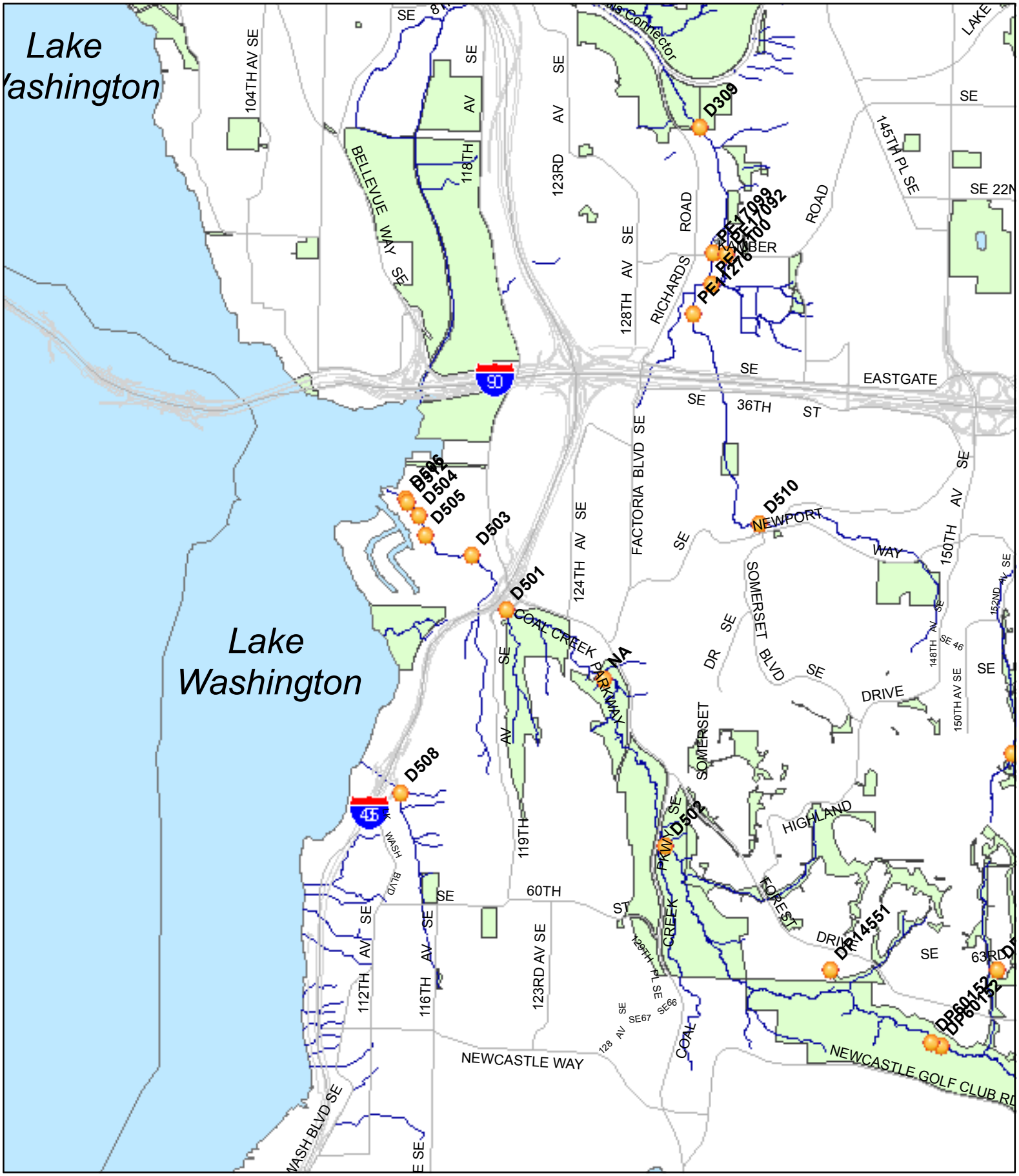


Legend

- Sediment Removal Sites
- Streams
- Parks

Sediment Removal Locations
NE Quadrant

N

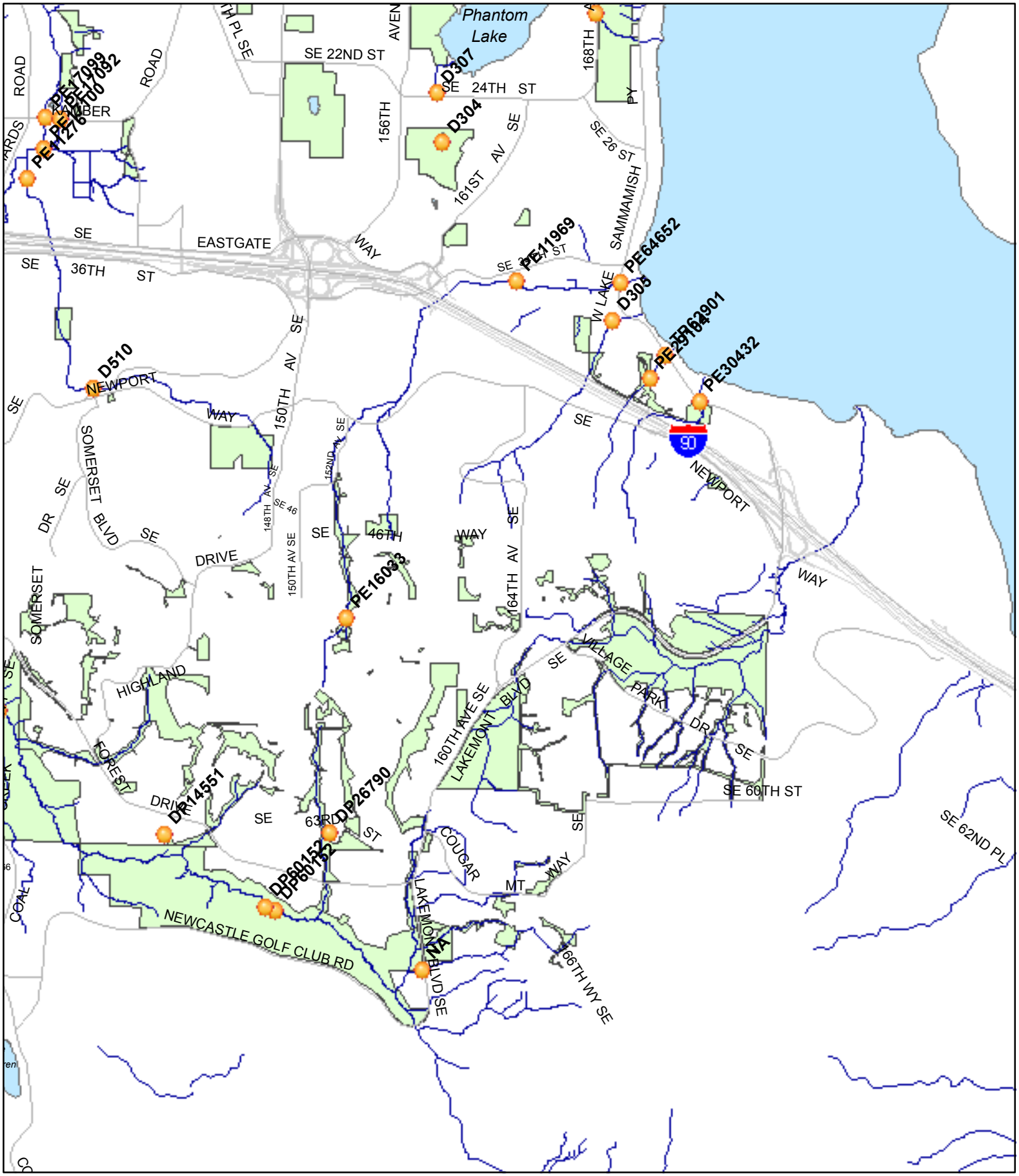


Legend

- Sediment Removal Sites
- Streams
- Parks

Sediment Removal Locations
SW Quadrant

N



Legend

- Sediment Removal Sites
- Streams
- Parks

Sediment Removal Locations
SE Quadrant

N

Washington Department of FISH and WILDLIFE

HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - See appeal process at end of HPA

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
City of Bellevue Utilities Storm & Surface Water	City of Bellevue Utilities Department
ATTENTION: Don McQuilliams	ATTENTION: Spencer Hillesland
PO Box 90012	PO Box 90012
Bellevue, WA 98009-9012	Bellevue, WA 98009
425-452-7865	425-452-7950
Fax: 425-452-5239	Fax: 425-452-5239

Project Name: Storm & Surface Water In-Stream Sediment Removal

Project Description: Maintenance of the public surface water system including stream crossings, instream detention and sediment trap facilities, and open ditches at various locations throughout the city

PROVISIONS

1. Removal of sediment below the ordinary high water line (OHWL) and removal of aquatic vegetation by mechanical means shall occur only between June 16 and August 31 at locations 1 - 4, 8, 13, 14, 15, 17, 18, 22, 44, and 47 and only between June 16 and September 30 at the other listed locations; removal of small debris such as brush and limbs and wood less than 4 inches diameter and less than 8 feet long may occur at any time at all locations.

2. NOTIFICATION REQUIREMENT: At locations 1 - 4, 8, 13, 14, 15, 17, 18, 22, 44, and 47, the Area Habitat Biologist (AHB) listed below shall receive e-mail notification (e-mail to fisheldf@dfw.wa.gov) from the person to whom this Hydraulic Project Approval (HPA) is issued (permittee) no less than three working days prior to start of work, and again within seven days of completion of work to arrange for a compliance inspection. The notification shall include the permittee's name, project location, starting date for work or completion date of work, and the control number for this HPA.

3. Work shall be accomplished per plans and specifications submitted to and approved by the Washington Department of Fish and Wildlife (WDFW) entitled, "2010 Storm & Surface Water In-Stream Sediment Removal Programmatic Permit Maintenance Standards", dated May 1, 2010, and per "ATTACHMENT A" contained therein, except as modified by this HPA. A copy of these plans shall be available on site during construction. Quantities of sediment removed shall not exceed those listed in ATTACHMENT A, and conducting of projects beyond the scope of these plans and specifications shall require a separate HPA.

4. Removal of sediment at the East Creek culvert on Kamber Road (location 18) shall be limited to the area of accumulation downstream of the culvert approximately 30 feet and up into the culvert where fine sediment has accumulated; sediment removal there shall occur only down to the elevation just above the level of summer base stream flow.

5. A temporary bypass to divert flow around the work area shall be in place prior to initiation of other work in the wetted perimeter.

6. The bypass shall be of sufficient size to pass all flows and debris for the duration of the project.

7. Prior to releasing the water flow to the project area, all instream work shall be completed.

8. Upon completion of the project, all material used in the temporary bypass shall be removed from the site and the site returned to preproject or improved conditions.

9. Where fish (including juveniles) are present, the permittee shall capture and safely move all food fish, game fish, and other fish life from the job site. The permittee shall have fish capture and transportation equipment ready and on the job site. Captured fish shall be immediately and safely transferred to free-flowing water downstream of the project site. The permittee may request the WDFW assist in capturing and safely moving fish life from the job site to free-flowing water, and assistance may be granted if personnel are available.

10. Any device used for diverting water from a fish-bearing stream shall be equipped with a fish guard to prevent passage of fish into the diversion device pursuant to RCW 77.57.010 and 77.57.070. The pump intake shall be screened with 1/8-inch mesh to prevent fish from entering the system. The screened intake shall consist of a facility with enough surface area to ensure that the velocity through the screen is less than 0.4 feet per second. Screen maintenance shall be adequate to prevent injury or entrapment to juvenile fish and the screen shall remain in place whenever water is withdrawn from the stream through the pump intake.

11. Dredged streambed materials shall be disposed of at approved in-water disposal sites, or upland so they will not re-enter state waters.

12. Equipment shall be operated to minimize turbidity. During excavation, each pass with the bucket shall be complete. Dredged material shall not be stockpiled in the stream.

13. Dredging shall be limited to maintaining the established sediment ponds. Banks shall not be disturbed.

14. The sediment pond facilities and fishways, including weirs, shall be maintained by the City of Bellevue per RCW 77.57.030 to ensure continued, unimpeded fish passage. If a hindrance to fish passage occurs, the City shall be responsible for obtaining an HPA and providing prompt repair. Financial responsibility for maintenance and repairs shall be that of the City.

15. Disturbance of the riparian vegetation shall be limited to that necessary to perform the maintenance activities. Affected areas of riparian vegetation shall be restored to preproject or improved habitat configuration. Establishment of native woody vegetation is encouraged to help shade invasive vegetation and prevent clogging of watercourses with fine sediments. Prior to December 31 of the year of maintenance activity, the disturbed areas of vegetation shall be revegetated with native or other woody species approved by the WDFW AHB listed below. Vegetative cuttings shall be planted at a maximum interval of three feet (on center). Plantings shall be maintained as necessary for three years to ensure 80 percent or greater survival of each

species or a contingency species approved by the AHB.

16. Equipment used for maintenance activity project shall be free of external petroleum-based products while working around the stream. Accumulation of soils or debris shall be removed from the drive mechanisms (wheels, tires, tracks, etc.) and undercarriage of equipment prior to its working below the OHWL. Equipment shall be checked daily for leaks and any necessary repairs shall be completed prior to commencing work activities along the stream.

17. If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), immediate notification shall be made to the Washington Emergency Management Division at 1-800-258-5990, and to the AHB.

18. Erosion control methods shall be used to prevent silt-laden water from entering the streams and their associated wetlands. These may include, but are not limited to, straw bales, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas.

19. Prior to starting work, the selected erosion control methods (Provision 18) shall be installed. Accumulated sediments shall be removed during the project and prior to removing the erosion control methods after completion of work.

20. Wastewater from project activities and water removed from within the work area shall be routed to an area landward of the OHWL to allow removal of fine sediment and other contaminants prior to being discharged to the stream or wetlands associated with the stream.

21. All waste material such as construction debris, silt, excess dirt or overburden resulting from this project shall be deposited above the limits of floodwater in an approved upland disposal site.

22. If high flow conditions that may cause siltation are encountered during this project, work shall stop until the flow subsides.

23. Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the stream wetlands associated with the stream.

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

PROJECT LOCATIONS

Location #1 Coal Creek downstream pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0268	Waterbody: Coal Creek				Tributary to: Lake Washington	
1/4 SEC: SW 1/4	Section: 16	Township: 25 N	Range: 05 E	Latitude: N 47.56634	Longitude: W 122.17969	County: King

Location #1 Driving Directions

upstream of 119th Ave SE

Location #2 Coal Creek sediment trap

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0268	Waterbody: Coal Creek				Tributary to: Lake Washington	
1/4 SEC: NE 1/4	Section: 24	Township: 25 N	Range: 05 E	Latitude: N 47.55342	Longitude: W 122.16602	County: King

Location #2 Driving Directions

upstream of Coal Creek Parkway

Location #3 Coal Creek culverts

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0268	Waterbody: Coal Creek				Tributary to: Lake Washington	
1/4 SEC: NE 1/4	Section: 17	Township: 24 N	Range: 05 E	Latitude: N 47.572	Longitude: W 122.18758	County: King

Location #3 Driving Directions

Newport Shores

Location #4 Coal Creek flow station

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0268	Waterbody: Coal Creek				Tributary to: Lake Washington	
1/4 SEC: NE 1/4	Section: 17	Township: 24 N	Range: 05 E	Latitude: N 47.5729	Longitude: W 122.18879	County: King

Location #4 Driving Directions

upstream of lower Skagit Key crossing

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #5 Lakehurst Ck sedimentation trap

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0281	Lakehurst Creek				Lake Washington	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NE 1/4	20	24 N	05 E	N 47.55767	W 122.18847	King
Location #5 Driving Directions						
Lake Wa. Blvd. east of I-405 @ 112th Ave SE						

Location #6 Wilkens Ck culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.6001	Lake Sammamish				Sammamish Slough	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NE 1/4	36	25 N	05 E	N 47.61415	W 122.1056	King
Location #6 Driving Directions						
W Lake Sammamish Pkwy about NE 8th St.						

Location #7 Yarrow Ck culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0252	Yarrow Creek				Lake Washington	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NW 1/4	20	25 N	05 E	N 47.6441	W 122.20225	King
Location #7 Driving Directions						
10833 Northup Way						

Location #8 Kelsey Ck regional detention pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SW 1/4	26	25 N	05 E	N 47.61766	W 122.14242	King
Location #8 Driving Directions						
148th Ave NE between NE 9th & 10th Streets						

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #9 Larson Lake regional detention pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SW 1/4	35	25 N	05 E	N 47.60784	W 122.14051	King
Location #9 Driving Directions						
149th Ave NE & Main St.						

Location #10 Meydenbauer Ck culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0258	Meydenbauer Creek				Lake Washington	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	31	25 N	05 E	N 47.61221	W 122.21125	King
Location #10 Driving Directions						
102nd Ave SE 200' west off 102nd Ave SE						

Location #11 Unnamed trib to Kelsey Ck

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NW 1/4	27	25 N	05 E	N 47.62796	W 122.15751	King
Location #11 Driving Directions						
Northup Way west of 136th Ave NE						

Location #12 Unnamed trib to Kelsey Ck culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NW 1/4	27	25 N	05 E	N 47.62719	W 122.1577	King
Location #12 Driving Directions						
Earth Bldg/136th Ave NE & NE 18th St.						

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #13 Kelsey Ck Lower West Trib regional pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0266	Waterbody: Kelsey Creek NF (rb)				Tributary to: Kelsey Creek	
1/4 SEC: SE 1/4	Section: 28	Township: 25 N	Range: 05 E	Latitude: N 47.61754	Longitude: W 122.1678	County: King
Location #13 Driving Directions: 12820 NE 8th St.						

Location #14 West Trib. regional detention pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0266	Waterbody: Kelsey Creek NF (rb)				Tributary to: Kelsey Creek	
1/4 SEC: SE 1/4	Section: 28	Township: 25 N	Range: 05 E	Latitude: N 47.62277	Longitude: W 122.17104	County: King
Location #14 Driving Directions: 1770 124th Ave NE						

Location #15 Richards Ck culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0261	Waterbody: Kelsey Creek SF				Tributary to: Kelsey Creek	
1/4 SEC: NE 1/4	Section: 09	Township: 24 N	Range: 05 E	Latitude: N 47.58724	Longitude: W 122.16194	County: King
Location #15 Driving Directions: 133rd Ave SE & Kamber Road						

Location #16 Richards Ck flow diversion

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0261	Waterbody: Kelsey Creek SF				Tributary to: Kelsey Creek	
1/4 SEC: NW 1/4	Section: 10	Township: 24 N	Range: 04 E	Latitude: N 47.58565	Longitude: W 122.16213	County: King
Location #16 Driving Directions: 13309 SE 26th St.						

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #17 Richards Ck flow station

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0261	Kelsey Creek SF				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	04	24 N	05 E	N 47.59556	W 122.16499	King
Location #17 Driving Directions						
1640 Richards Road						

Location #18 Unnamed trib to Richards Ck culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0261	Kelsey Creek SF				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NE 1/4	09	24 N	05 E	N 47.58741	W 122.15888	King
Location #18 Driving Directions						
134th Ave SE & Kamber Road						

Location #19 Sturtevant Ck culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0260	Sturtevant Creek				Mercer Sl Cont Kelsey Cr	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	32	25 N	05 E	N 47.602	W 122.18651	King
Location #19 Driving Directions						
SE 8th St. west of 118th Ave SE						

Location #20 Sturtevant Ck culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0260	Sturtevant Creek				Mercer Sl Cont Kelsey Cr	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	32	25 N	05 E	N 47.60449	W 122.18708	King
Location #20 Driving Directions						
SE 6th St. west of 118th Ave SE						

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #21 Sturtevant Ck flow station

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0260	Sturtevant Creek				Mercer Sl Cont Kelsey Cr	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	32	25 N	05 E	N 47.60462	W 122.68708	King
Location #21 Driving Directions						
SE 6th St. west of 118th Ave SE						

Location #22 Sunset Ck culverts

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0262	Sunset Creek				Kelsey Creek SF	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	09	24 N	05 E	N 47.58385	W 122.16249	King
Location #22 Driving Directions						
133rd Ave SE & SE 30th St.						

Location #23 Sunset Ck high flow bypass

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0262	Sunset Creek				Kelsey Creek SF	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NW 1/4	15	24 N	05 E	N 47.57187	W 122.15704	King
Location #23 Driving Directions						
13801 SE Allen Road						

Location #24 Goff Ck regional detention pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	28	25 N	05 E	N 47.62058	W 122.16964	King
Location #24 Driving Directions						
12700 SE 10th St.						

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #25 Goff Ck culverts

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	28	25 N	05 E	N 47.61878	W 122.16544	King
Location #25 Driving Directions						
137th Ave NE north of NE 10th St.						

Location #26 Goff Ck trash rack at high flow bypass

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NE 1/4	28	25 N	05 E	N 47.63165	W 122.16461	King
Location #26 Driving Directions						
NE 24th St. east of 130th Ave NE						

Location #27 Valley Ck regional detention pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NE 1/4	27	25 N	05 E	N 47.63174	W 122.15226	King
Location #27 Driving Directions						
14040 NE 24th St.						

Location #28 Valley Ck trash rack @ high flow bypass

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NE 1/4	27	25 N	05 E	N 47.62865	W 122.15308	King
Location #28 Driving Directions						
NE 21st. Pl. east of 140th Ave NE						

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #29 Valley Ck flow station

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NE 1/4	27	25 N	05 E	N 47.62466	W 122.15296	King

Location #29 Driving Directions

110' north of BelRed Road east of 140th Ave NE

Location #30 Commission Waterway regional pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NW 1/4	26	25 N	05 E	N 47.62633	W 122.14341	King

Location #30 Driving Directions

BelRed Road west of 148th Ave NE

Location #31 Overlake regional detention pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0266	Kelsey Creek NF (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NE 1/4	27	25 N	05 E	N 47.62792	W 122.14799	King

Location #31 Driving Directions

144th Ave NE & NE 20th St.

Location #32 Vasa Ck box culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0156	Vasa Creek (ls)				Lake Sammamish	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SW 1/4	12	24 N	05 E	N 47.5784	W 122.11348	King

Location #32 Driving Directions

SW 35th St & W L Sammamish Pkwy SE

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #33 Trib to Vasa Ck culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0156	Waterbody: Vasa Creek (ls)			Tributary to: Lake Sammamish		
1/4 SEC: NW 1/4	Section: 23	Township: 24 N	Range: 05 E	Latitude: N 47.56346	Longitude: W 122.14484	County: King
Location #33 Driving Directions: 15217 SE 48th Drive						

Location #34 Vasa Ck trib culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0156	Waterbody: Vasa Creek (ls)			Tributary to: Lake Sammamish		
1/4 SEC: SW 1/4	Section: 12	Township: 24 N	Range: 05 E	Latitude: N 47.57861	Longitude: W 122.12003	County: King
Location #34 Driving Directions: 167th Ave SE & SE 35th St.						

Location #35 Unnamed stream 0160 pond and inlet

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.6001	Waterbody: Lake Sammamish			Tributary to: Sammamish Slough		
1/4 SEC: SW 1/4	Section: 12	Township: 24 N	Range: 05 E	Latitude: N 47.57634	Longitude: W 122.11386	County: King
Location #35 Driving Directions: SE 38th St. & SE 38th Pl.						

Location #36 Trib to L Sammamish culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.6001	Waterbody: Lake Sammamish			Tributary to: Sammamish Slough		
1/4 SEC: NE 1/4	Section: 13	Township: 24 N	Range: 05 E	Latitude: N 47.57629	Longitude: W 122.11189	County: King
Location #36 Driving Directions: 4015 W L Sammamish Parkway SE						

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #37 Trib to L Sammamish culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.6001	Waterbody: Lake Sammamish				Tributary to: Sammamish Slough	
1/4 SEC: NW 1/4	Section: 13	Township: 24 N	Range: 05 E	Latitude: N 47.57329	Longitude: W 122.11113	County: King
Location #37 Driving Directions: 17152 SE 40th Pl						

Location #38 Trib 0161 to L Sammamish culvert

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.6001	Waterbody: Lake Sammamish				Tributary to: Sammamish Slough	
1/4 SEC: NW 1/4	Section: 13	Township: 24 N	Range: 05 E	Latitude: N 47.57647	Longitude: W 122.11253	County: King
Location #38 Driving Directions: 4094 W L Sammamish Pkwy SE						

Location #39 Phantom L lake elevation station

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.6028	Waterbody: Phantom Lake				Tributary to:	
1/4 SEC: SE 1/4	Section: 02	Township: 24 N	Range: 05 E	Latitude: N 47.59612	Longitude: W 122.12906	County: King
Location #39 Driving Directions: Phantom L about SE 16th St.						

Location #40 Phantom Ck flow station

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA: 08.0154	Waterbody: Phantom Creek (ls)				Tributary to: Lake Sammamish	
1/4 SEC: SE 1/4	Section: 02	Township: 24 N	Range: 05 E	Latitude: N 47.59479	Longitude: W 122.11965	County: King
Location #40 Driving Directions: Phantom Ck about SE 17th Pl.						

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #41 Phantom Ck lake inlet flow station

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0154	Phantom Creek (ls)				Lake Sammamish	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	02	24 N	05 E	N 47.58904	W 122.12957	King
Location #41 Driving Directions						
Phantom Ck at SE 17th Pl.						

Location #42 Trib to Coal Creek on Lakemont Blvd.

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0268	Coal Creek				Lake Washington	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NE 1/4	26	24 N	05 E	N 47.5375	W 122.1288	King
Location #42 Driving Directions						
north of 7219 Lakemont Blvd SE						

Location #43 Concrete Box Culvert Inlet

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0252	Yarrow Creek				Lake Washington	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NW 1/4	20	25 N	05 E	N 47.64208	W 122.20416	King
Location #43 Driving Directions						
behind 3265 103rd Ave NE						

Location #44 Kelsey Creek Park new sediment trap

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0264	West Tributary (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	33	25 N	05 E	N 47.60595	W 122.16482	King
Location #44 Driving Directions						
410 130th Pl SE, just upstream of the parking lot						

Issue Date: June 14, 2011
Project Expiration Date: June 13, 2016

Control Number: 123866-1
FPA/Public Notice #: N/A

Location #45 W Trib Kelsey Ck 120 to 124th Ave. NE

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0264	West Tributary (rb)				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	28	25 N	05 E	N 47.62277	W 122.17104	King

Location #45 Driving Directions

Location #46 156th Ave SE n of SE 16th St.

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0261	Kelsey Creek SF				Kelsey Creek	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
NW 1/4	02	24 N	05 E	N 47.59711	W 122.13182	King

Location #46 Driving Directions

Location #47 Coal Creek Off-line Sediment Pond

WORK START: June 14, 2011					WORK END: June 13, 2016	
WRIA:	Waterbody:				Tributary to:	
08.0268	Coal Creek				Lake Washington	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SE 1/4	16	24 N	05 E	N 47.56254	W 122.171125	King

Location #47 Driving Directions

Off Coal Creek Parkway, south on 125th Ave SE, to end

APPLY TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW (formerly RCW 77.20). Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

Issue Date: June 14, 2011 | Control Number: 123866-1

Project Expiration Date: June 13, 2016 | FPA/Public Notice #: N/A

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil penalty of up to one hundred dollars per day and/or a gross misdemeanor charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

Requests for any change to an unexpired HPA must be made in writing. Requests for new HPAs must be made by submitting a new complete application. Send your requests to the department by: mail to the Washington Department of Fish and Wildlife, Habitat Program, 600 Capitol Way North, Olympia, Washington 98501-1091; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor.

APPEALS INFORMATION

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the department employee who issued or denied the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by department management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process. You may contact the HPA Appeals Coordinator at (360) 902-2260 for more information.

A. INFORMAL APPEALS: WAC 220-110-340 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the Washington Department of Fish and Wildlife HPA Appeals Coordinator, 600 Capitol Way North, Olympia, Washington 98501-1091; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee will conduct an informal hearing and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

B. FORMAL APPEALS: WAC 220-110-350 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule.

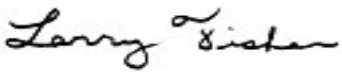
Issue Date: June 14, 2011 | Control Number: 123866-1

Project Expiration Date: June 13, 2016 | FPA/Public Notice #: N/A

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request for a formal appeal to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the Washington Department of Fish and Wildlife HPA Appeals Coordinator, 600 Capitol Way North, Olympia, Washington 98501-1091; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Director's or designee's written decision in response to the informal appeal.

C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

ENFORCEMENT: Sergeant Hobbs (27) P2

Habitat Biologist Larry Fisher	425-313-5683		for Director WDFW

CC:

Attachment 'C'

General Construction Storm Water Pollution Prevention Plan (CSWPPP)

1. Project Information
   - Project Name: 2013 Programmatic Storm & Surface Water Sediment Removal.
   - Address: Citywide sites; see attached Sediment Removal Table and Sediment Removal Location map.
   - Property Owner: All sites are located on City of Bellevue ROW or properties. The Storm & Surface Water Section of Utilities is the lead on this project. Please contact Don McQuilliams @ (425) 452-7865 for questions.
   - CSWPPP Preparer: Don McQuilliams, CESCL #UW-238403
   - Project CESCLs: Storm & Surface Water Lead Worker Frank Oriel, Lead Worker Tony Shehab & Technical Specialist Chad Brown.

2. Project Description
   - Annual removal of sediment from in-stream sedimentation ponds at various locations around the City to provide storm water storage for flood protection and water quality. Most of these ponds only need maintenance every several years while a few require annual maintenance. Total size of the project varies annually dependent on site characteristics but typically annual project scope is approximately 20,000 square feet of in-stream disturbance with 2500-3000 cubic yards of sediment removed annually.

3. Existing Site Conditions
   - Most all of the sites listed on attachment 'A' are located within or adjacent to stream and drainage courses. These range from year round high volume streams such as Kelsey and Coal Creek to seasonal drainages. Topography varies per site but generally is within stream course channels and critical areas. Vegetation again varies with each site but is typical of northwest native shrubs and trees.

4. Site Soils
   - A Citywide Soils Map (Attachment D) has been attached with the sites overlaid to illustrate various soil types at each site. Sediment removal activities are conducted either from a gravel/asphalt staging area adjacent to the pond(s) or by working directly within the drainage channel and loading into awaiting trucks in an adjacent staging area.

5. Adjacent Areas
   - No buildings are located adjacent to these sites; access roadways, drainage infrastructure and other utilities are present on many of the sites and will be located prior to any work conducted.

6. Critical Areas
   - All of the sites under this program are within or adjacent to critical areas. The Storm & Surface Water Utility is accustom to working within and adjacent to critical areas and will implement BMP's as needed to ensure unnecessary damages are not caused as a result of the sediment removal operations.

7. Erosion Problem Areas

- Many of the sites pose challenging erosion concerns if proper BMP's are not setup to address ahead of time. Each site will be dewatered before the work is to be done and appropriate BMP's will be put in place ahead of and during work operations to minimize erosion impacts.

8. Construction Stormwater Pollution Prevention Elements
    - Mark Clearing Limits – only the minimal clearing necessary will be conducted for work on each site. Most of these sites are well defined and have evident clearing limits.
    - Establish Construction Access – Access roads & staging areas have been designed into many of these ponds and will be used solely for ingress/egress if a designed access is present. Sites requiring access improvements will be evaluated on a case by case basis.
    - Control Flow Rates – Waters from each site will be temporarily by-passed or diverted away from the work site and into areas suitable for diversion. Many sites have built in by-pass facilities to allow for easy de-watering during maintenance frequencies.
    - Install Sediment Controls – BMP's will be placed as determined by the onsite CESCL and project Lead. Please refer to the Sediment Management Plan within the Work Description for further details.
    - Stabilize Soils – This will be addressed as needed and determined by the onsite CESCL and project Lead. Most sites do not require soil stabilization under normal working conditions.
    - Protect Slopes - This will be addressed as needed and determined by the onsite CESCL and project Lead. Most sites do not require slope protection under normal working conditions.
    - Protect Drain Inlets – Addressed as needed, BMP's will be setup to minimize sediment from entering the Storm & Surface Water System.
    - Stabilize Channels and Outlets - This will be addressed as needed and determined by the onsite CESCL and project Lead. Most sites do not require Channel Stabilization under normal working conditions.
    - Control Pollutants – During work activities, BMP's will be in place should a pollutant spill occur from machinery within the worksite. Additionally, the Storm & Surface Water Utility can respond to spills on short notice with additional staff and spill response supplies as needed.
    - Control De-Watering – All work sites under this project will be de-watered with pumps or built in by-pass facilities prior to sediment removal operations. Fish exclusion will be conducted as needed on sites where fish are present or possibly present. De-watering equipment will remain in place throughout the duration of work at each site.
    - Maintain BMP's – BMP's will be inspected and adjusted as necessary by a CESCL present on the job site at least once per day or more frequently as needed.
    - Manage the Project – The Project Lead will be responsible for day to day operations of the site. The Storm and Surface Water Crew Leader and Superintendent will conduct periodic inspections to ensure project goals are being met.

9. Construction Phasing
    - The Construction Sequence section of the attached Work Description outlines the typical phasing for a sediment removal project. Each job will vary slightly and additions or subtractions may be implemented as determined by the Project Lead.

10. Construction Schedule
    - Scheduling of this work is determined by the available timing within the Fish window from June 16th to September 30th. A few locations are not subject to the Fish window but are still under rainy season restrictions and will be done during dry months in and surrounding the summer.

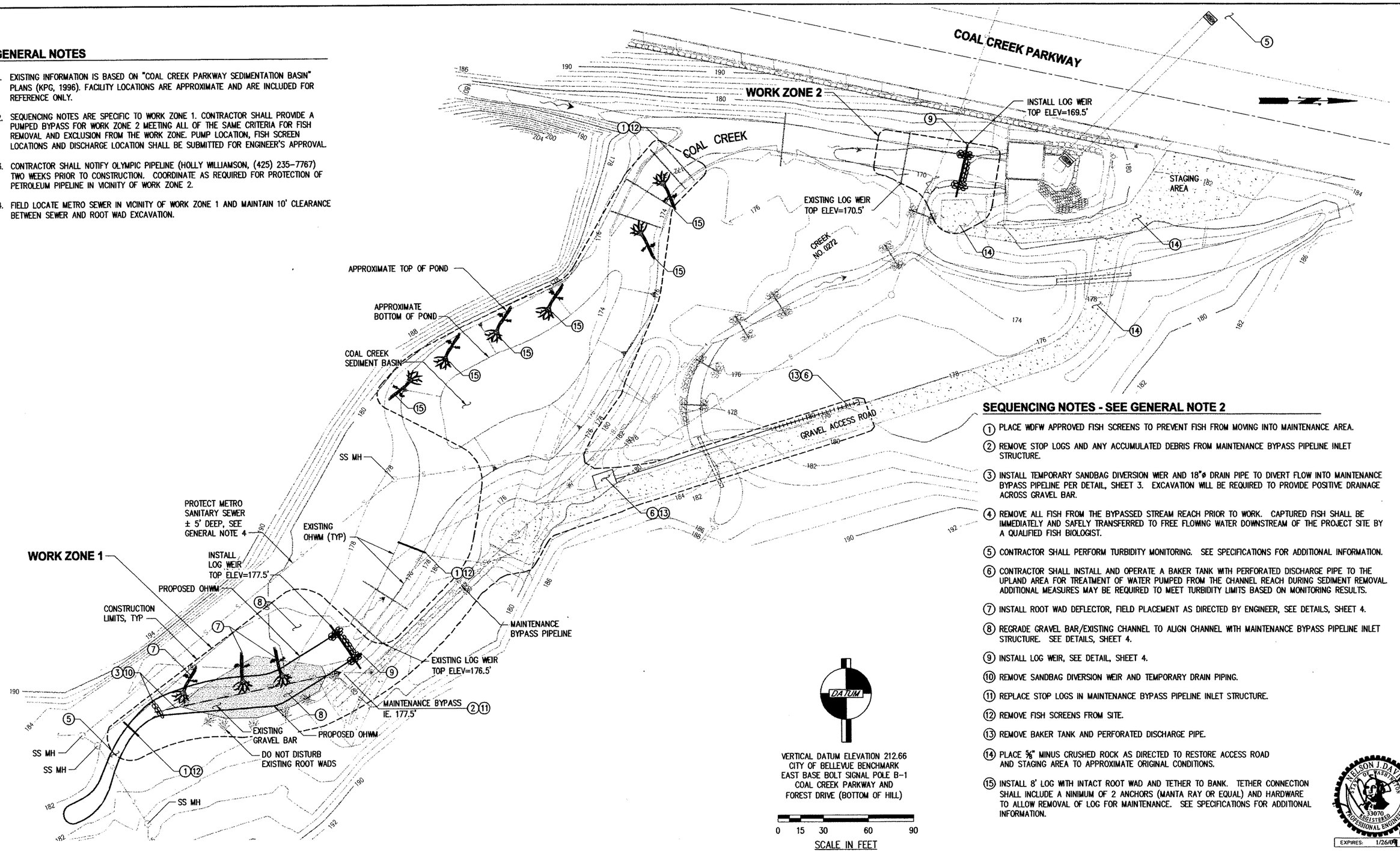
11. Financial/Ownership Responsibilities
    - All activities and associated responsibilities as part of these projects are conducted by the City of Bellevue Storm and Surface Water Utility.

12. Engineering Calculations
    - Original Engineering designs are available for several of the sites listed and are available upon request. Each site will be returned as close to the original intent of the Engineer as possible during sediment removal. Major site modifications will be discussed with the Engineering section of Utilities prior to work being done.

13. Plans and Drawings
    - Commonly used Best Management Practices (BMP) detail sheets are included with this document as Attachment 'E" with standard BMP's defined for each site on Attachment 'A'. A vicinity map is also attached showing the location of each project site. Detailed drawings for several of the larger sites have also been included with site specific BMP's as follows:
        i. Coal Creek sedimentation Pond: Permanent stream by-pass system, pond dewatering into baker tanks during project, sandbags kept onsite during project work.
        ii. I-405 Regional Pond: Permanent stream by-pass system, pond dewatering into baker tanks during project, sandbags kept onsite during project work.
        iii. Coal Creek offline Sedimentation Pond: Pond dewatering into baker tanks during project, sandbags kept onsite during project work.
        iv. Pond A: Inlet/outlet by-pass into lower cell, cell dewatering, sand bag coffer dam to isolate work area.
        v. SE 63rd Detention Pond: Inlet/outlet by-pass into nearby control structure or baker tank (as needed). Inlet/out protection.
        vi. Lakehurst Sedimentation Pond: Stream by-pass into control structure, dewatering work site into adjacent vegetation, inlet protection.

GENERAL NOTES

1. EXISTING INFORMATION IS BASED ON "COAL CREEK PARKWAY SEDIMENTATION BASIN" PLANS (KPG, 1996). FACILITY LOCATIONS ARE APPROXIMATE AND ARE INCLUDED FOR REFERENCE ONLY.
2. SEQUENCING NOTES ARE SPECIFIC TO WORK ZONE 1. CONTRACTOR SHALL PROVIDE A PUMPED BYPASS FOR WORK ZONE 2 MEETING ALL OF THE SAME CRITERIA FOR FISH REMOVAL AND EXCLUSION FROM THE WORK ZONE. PUMP LOCATION, FISH SCREEN LOCATIONS AND DISCHARGE LOCATION SHALL BE SUBMITTED FOR ENGINEER'S APPROVAL.
3. CONTRACTOR SHALL NOTIFY OLYMPIC PIPELINE (HOLLY WILLIAMSON, (425) 235-7767) TWO WEEKS PRIOR TO CONSTRUCTION. COORDINATE AS REQUIRED FOR PROTECTION OF PETROLEUM PIPELINE IN VICINITY OF WORK ZONE 2.
4. FIELD LOCATE METRO SEWER IN VICINITY OF WORK ZONE 1 AND MAINTAIN 10' CLEARANCE BETWEEN SEWER AND ROOT WAD EXCAVATION.



SEQUENCING NOTES - SEE GENERAL NOTE 2

1. PLACE WDFW APPROVED FISH SCREENS TO PREVENT FISH FROM MOVING INTO MAINTENANCE AREA.
2. REMOVE STOP LOGS AND ANY ACCUMULATED DEBRIS FROM MAINTENANCE BYPASS PIPELINE INLET STRUCTURE.
3. INSTALL TEMPORARY SANDBAG DIVERSION WIER AND 18"ø DRAIN PIPE TO DIVERT FLOW INTO MAINTENANCE BYPASS PIPELINE PER DETAIL, SHEET 3. EXCAVATION WILL BE REQUIRED TO PROVIDE POSITIVE DRAINAGE ACROSS GRAVEL BAR.
4. REMOVE ALL FISH FROM THE BYPASSED STREAM REACH PRIOR TO WORK. CAPTURED FISH SHALL BE IMMEDIATELY AND SAFELY TRANSFERRED TO FREE FLOWING WATER DOWNSTREAM OF THE PROJECT SITE BY A QUALIFIED FISH BIOLOGIST.
5. CONTRACTOR SHALL PERFORM TURBIDITY MONITORING. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
6. CONTRACTOR SHALL INSTALL AND OPERATE A BAKER TANK WITH PERFORATED DISCHARGE PIPE TO THE UPLAND AREA FOR TREATMENT OF WATER PUMPED FROM THE CHANNEL REACH DURING SEDIMENT REMOVAL. ADDITIONAL MEASURES MAY BE REQUIRED TO MEET TURBIDITY LIMITS BASED ON MONITORING RESULTS.
7. INSTALL ROOT WAD DEFLECTOR, FIELD PLACEMENT AS DIRECTED BY ENGINEER, SEE DETAILS, SHEET 4.
8. REGRADE GRAVEL BAR/EXISTING CHANNEL TO ALIGN CHANNEL WITH MAINTENANCE BYPASS PIPELINE INLET STRUCTURE. SEE DETAILS, SHEET 4.
9. INSTALL LOG WEIR, SEE DETAIL, SHEET 4.
10. REMOVE SANDBAG DIVERSION WEIR AND TEMPORARY DRAIN PIPING.
11. REPLACE STOP LOGS IN MAINTENANCE BYPASS PIPELINE INLET STRUCTURE.
12. REMOVE FISH SCREENS FROM SITE.
13. REMOVE BAKER TANK AND PERFORATED DISCHARGE PIPE.
14. PLACE ⅝" MINUS CRUSHED ROCK AS DIRECTED TO RESTORE ACCESS ROAD AND STAGING AREA TO APPROXIMATE ORIGINAL CONDITIONS.
15. INSTALL 8' LOG WITH INTACT ROOT WAD AND TETHER TO BANK. TETHER CONNECTION SHALL INCLUDE A NINIMUM OF 2 ANCHORS (MANTA RAY OR EQUAL) AND HARDWARE TO ALLOW REMOVAL OF LOG FOR MAINTENANCE. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

DATUM

VERTICAL DATUM ELEVATION 212.66
CITY OF BELLEVUE BENCHMARK
EAST BASE BOLT SIGNAL POLE B-1
COAL CREEK PARKWAY AND
FOREST DRIVE (BOTTOM OF HILL)

0 15 30 60 90
SCALE IN FEET

NELSON J. DAVIS
STATE OF WASHINGTON
33070
REGISTERED
PROFESSIONAL ENGINEER
5-14-07
EXPIRES: 1/26/08

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING DESIGN MANAGER DATE

PROJECT ENGINEER DATE

FILENAME	02PLN02A.DWG
DESIGNED BY	NJD 3/07 DATE
DRAWN BY	SAA 3/07 DATE
CHECKED BY	NJD 3/07 DATE

City of Bellevue
Utilities Department

KPG
Architecture
Landscape Architecture
Civil Engineering
Urban Design

BID DOCUMENT

SITE 1. COAL CREEK SEDIMENT BASIN DIVERSION WEIR

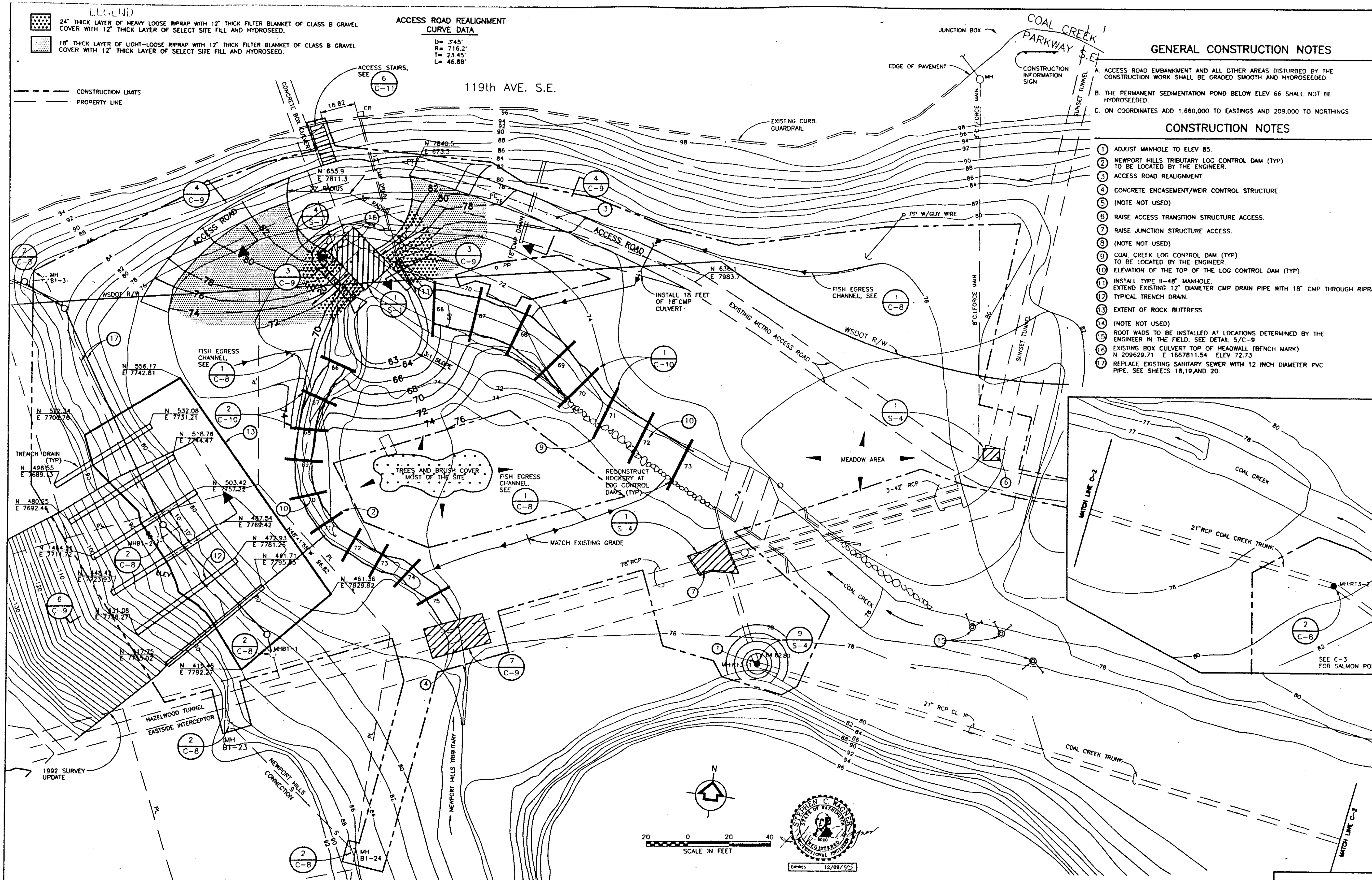
SITE PLAN
21-24-5 H-15
SCALE H: 1"=30' V: N/A
SHT 2 OF 6

LEGEND

- 24" THICK LAYER OF HEAVY LOOSE RIPRAP WITH 12" THICK FILTER BLANKET OF CLASS B GRAVEL COVER WITH 12" THICK LAYER OF SELECT SITE FILL AND HYDROSEED.
- 18" THICK LAYER OF LIGHT-LOOSE RIPRAP WITH 12" THICK FILTER BLANKET OF CLASS B GRAVEL COVER WITH 12" THICK LAYER OF SELECT SITE FILL AND HYDROSEED.
- CONSTRUCTION LIMITS
- PROPERTY LINE

ACCESS ROAD REALIGNMENT CURVE DATA

D= 3°45'
R= 716.2'
T= 23.45'
L= 46.88'



GENERAL CONSTRUCTION NOTES

A. ACCESS ROAD EMBANKMENT AND ALL OTHER AREAS DISTURBED BY THE CONSTRUCTION WORK SHALL BE GRADED SMOOTH AND HYDROSEEDED.

B. THE PERMANENT SEDIMENTATION POND BELOW ELEV 66 SHALL NOT BE HYDROSEEDED.

C. ON COORDINATES ADD 1,660,000 TO EASTINGS AND 209,000 TO NORTHINGS

CONSTRUCTION NOTES

1. ADJUST MANHOLE TO ELEV 85.
2. NEWPORT HILLS TRIBUTARY LOG CONTROL DAM (TYP) TO BE LOCATED BY THE ENGINEER.
3. ACCESS ROAD REALIGNMENT
4. CONCRETE ENCASEMENT/WEIR CONTROL STRUCTURE.
5. (NOTE NOT USED)
6. RAISE ACCESS TRANSITION STRUCTURE ACCESS.
7. RAISE JUNCTION STRUCTURE ACCESS.
8. (NOTE NOT USED)
9. COAL CREEK LOG CONTROL DAM (TYP) TO BE LOCATED BY THE ENGINEER.
10. ELEVATION OF THE TOP OF THE LOG CONTROL DAM (TYP).
11. INSTALL TYPE II-48" MANHOLE. EXTEND EXISTING 12" DIAMETER CMP DRAIN PIPE WITH 18" CMP THROUGH RIPRAP.
12. TYPICAL TRENCH DRAIN.
13. EXTENT OF ROCK BUTTRESS
14. (NOTE NOT USED)
15. ROOT WADS TO BE INSTALLED AT LOCATIONS DETERMINED BY THE ENGINEER IN THE FIELD. SEE DETAIL 5/C-9.
16. EXISTING BOX CULVERT TOP OF HEADWALL (BENCH MARK). N 209629.71 E 1667811.54 ELEV 72.73
17. REPLACE EXISTING SANITARY SEWER WITH 12 INCH DIAMETER PVC PIPE. SEE SHEETS 18,19,AND 20.

NO.	DATE	BY	APPR	REVISION
1	4-29-93	MSG	DW	REVIEW COMMENTS
2	5-11-93	DW	DW	REVISIONS
3	3/22/94	DW	DW	REV. TO LIMIT SITE DISTURBANCE

Approved By Scott Taylor

DESIGNED BY DW	DATE 6/15/87
DRAWN BY DW	DATE 6/15/87
CHECKED BY SW	DATE 4/6/88

CITY OF BELLEVUE
UTILITIES DEPARTMENT

I-405/COAL CREEK REGIONAL DETENTION/SEDIMENTATION FACILITY

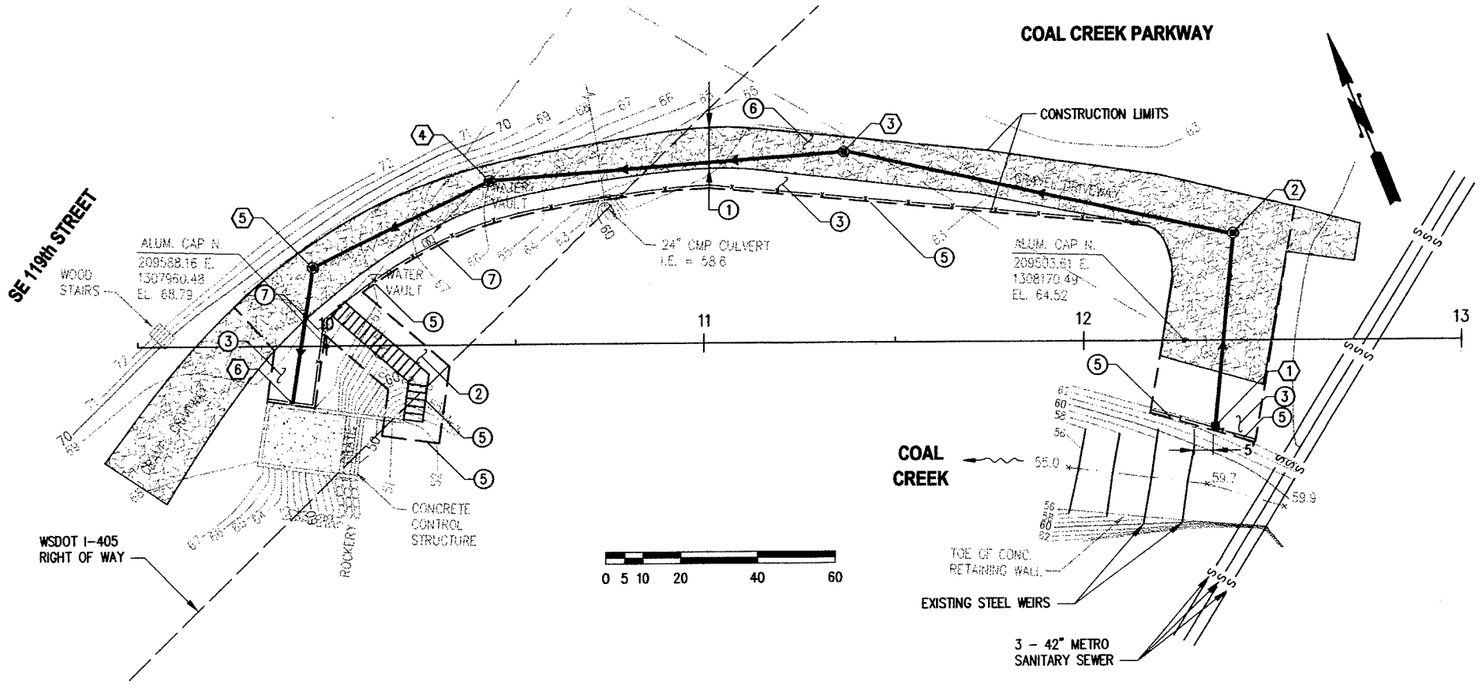
SITE PLAN

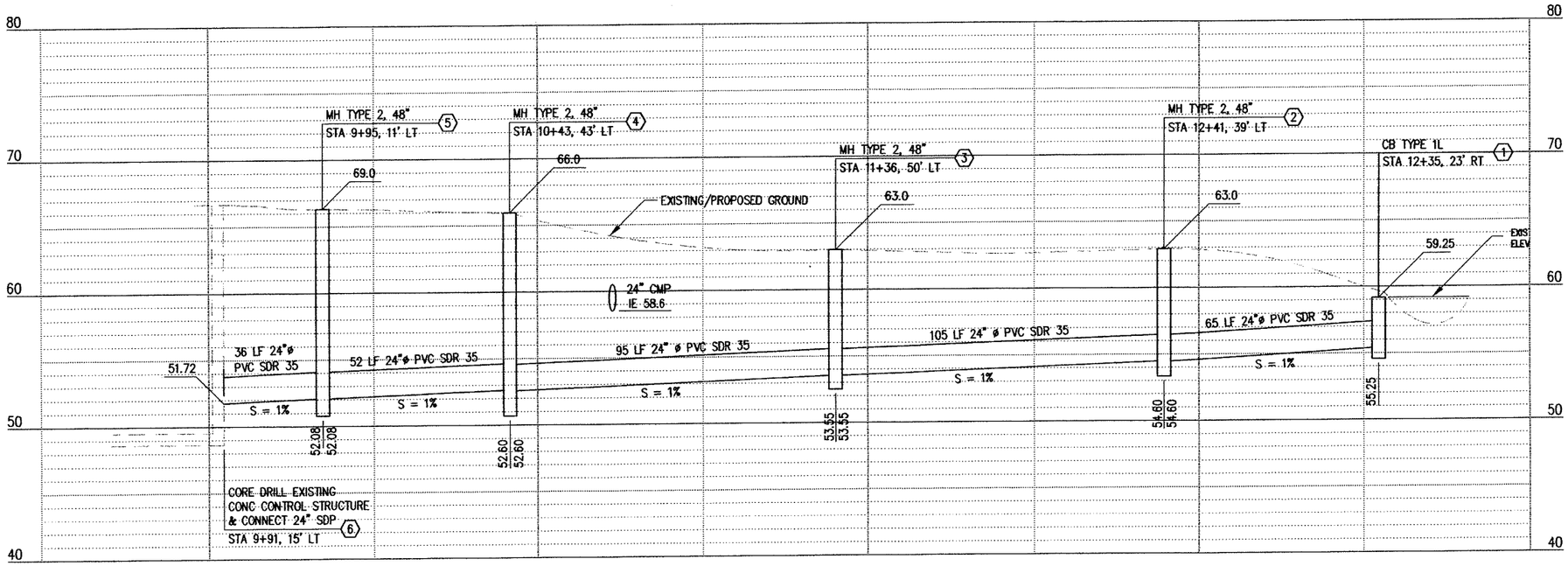
C-2

KCM, Inc.
1917 First Avenue
Seattle, Washington 98101

SHT 2 OF 20

03089CX2 DWG ROTATE 7.5660 DEG.; DVIEW TWIST 336 20; PLOT 1=20



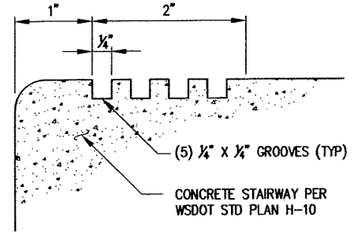


CONSTRUCTION NOTES

1. RESTORE GRAVEL ACCESS ROAD TO MATCH EXISTING DIMENSIONS (TYP).
2. INSTALL 5' WIDE CONCRETE STAIRWAY WITH HANDRAILS PER WSDOT STD PLAN H-10 TO PROVIDE FOOT ACCESS FOR TRASH MAINTENANCE. PROVIDE NON SKID TREAD PER DETAIL THIS SHEET. FIELD LOCATE FOR APPROVAL BY THE ENGINEER.
3. HYDROSEED DISTURBED SLOPE AREAS WITH EROSION CONTROL SEED MIX. MAXIMUM PAY LIMITS ARE CONSTRUCTION LIMITS SHOWN.
4. PLACE SANDBAG COFFERDAM PRIOR TO CATCH BASIN INSTALLATION TO ISOLATE WORK AREA FROM CREEK FLOWS. SEE DETAIL, SHEET 6.
5. INSTALL STRAW WATTLES ALONG TOP OF BANK BASE OF STAIRWELL PRIOR TO BEGINNING CONSTRUCTION.
6. RESTORE GRAVEL DRIVEWAY (APPROX 600 SY) WITH 4" DEPTH COMPACTED CSBC.
7. PROTECT WATER VAULTS (IRRIGATION BLOWOFF).

GENERAL NOTES

1. SAND COLLARS SHALL BE USED AT ALL PVC PIPE/MANHOLE CONNECTIONS.
2. CONTRACTOR TO PROVIDE TURBIDITY MONITORING DURING CONSTRUCTION. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. WSDOT RIGHT OF WAY AND METRO SANITARY SEWER LOCATIONS ARE APPROXIMATE. LOCATIONS ARE PER I-405/COAL CREEK REGIONAL POND AS BUILTS (KCM, 1994).
4. INVERTED ELEVATIONS SHOWN ARE TO PROJECTED COVER OF STRUCTURE.
5. INSTALL TESC MEAURES AND TEMPORARY COFFERDAM PRIOR TO EXCAVATION AND GRADING.



NON SKID TREAD DETAIL
NTS

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING DESIGN MANAGER DATE

PROJECT ENGINEER DATE

FILENAME	0021PPR02.DWG
DESIGNED BY	NJD 3/07 DATE
DRAWN BY	SAA 3/07 DATE
CHECKED BY	NJD 3/07 DATE

City of Bellevue
Utilities Department

KPG
Architecture
Landscape Architecture
Civil Engineering
Urban Design

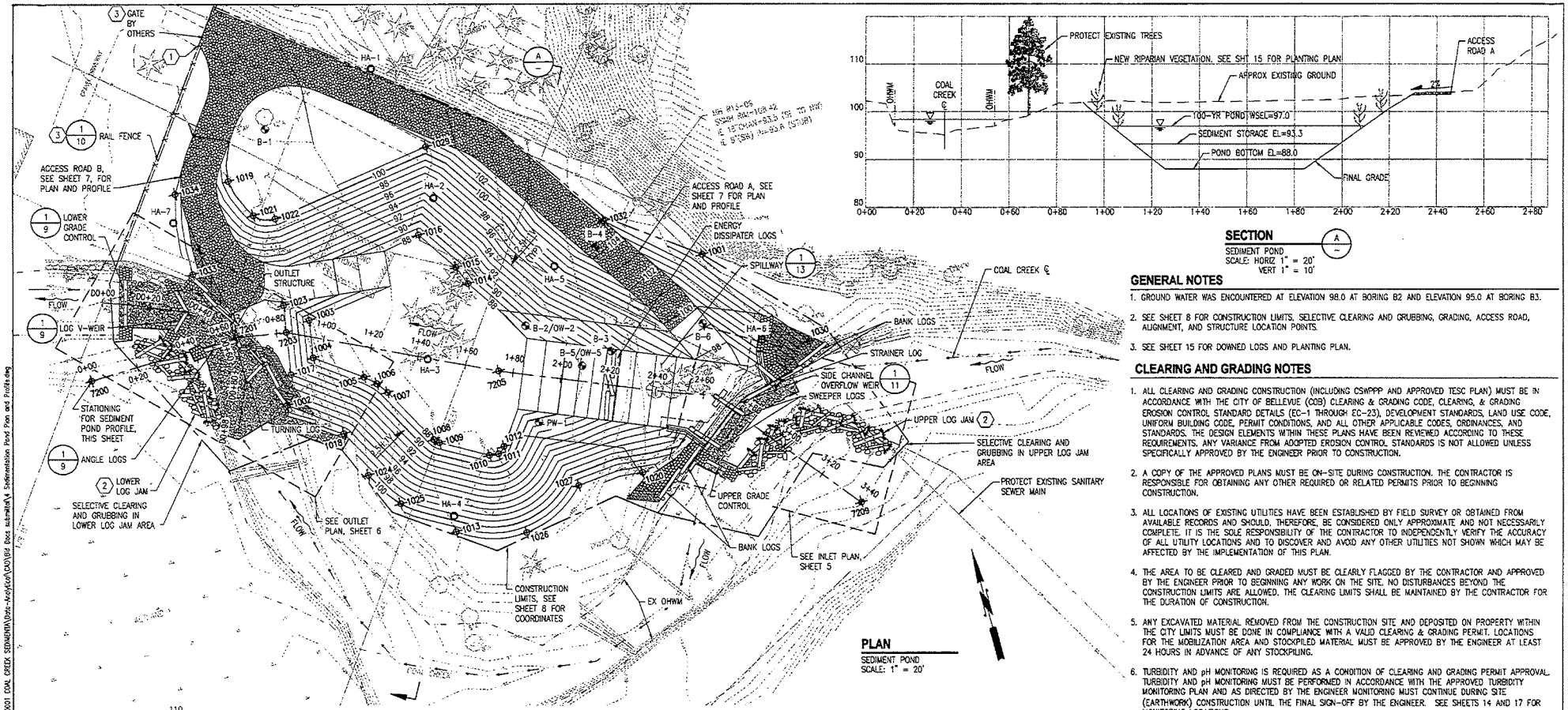
BID DOCUMENT

SITE 2. I-405 POND BYPASS PIPE

I-405 POND BYPASS PIPE INSTALLATION
21-24-5 H-15

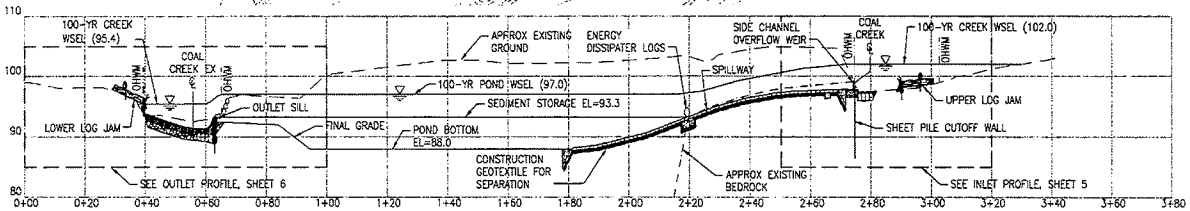
SCALE H: N/A V: N/A

SHT 5 OF 6



PLAN
SEDIMENT POND
SCALE: 1" = 20'

SECTION (A)
SEDIMENT POND
SCALE: HORIZ 1" = 20'
VERT 1" = 10'



PROFILE
SEDIMENT POND
SCALE: HORIZ 1" = 20'
VERT 1" = 10'

GENERAL NOTES

1. GROUND WATER WAS ENCOUNTERED AT ELEVATION 98.0 AT BORING B2 AND ELEVATION 95.0 AT BORING B3.
2. SEE SHEET 8 FOR CONSTRUCTION LIMITS, SELECTIVE CLEARING AND GRUBBING, GRADING, ACCESS ROAD, ALIGNMENT, AND STRUCTURE LOCATION POINTS.
3. SEE SHEET 15 FOR DOWNED LOGS AND PLANTING PLAN.

CLEARING AND GRADING NOTES

1. ALL CLEARING AND GRADING CONSTRUCTION (INCLUDING CSWPPP AND APPROVED TESC PLAN) MUST BE IN ACCORDANCE WITH THE CITY OF BELLEVUE (COB) CLEARING & GRADING CODE, CLEARING, & GRADING EROSION CONTROL STANDARD DETAILS (EC-1 THROUGH EC-23), DEVELOPMENT STANDARDS, LAND USE CODE, UNIFORM BUILDING CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES, AND STANDARDS. THE DESIGN ELEMENTS WITHIN THESE PLANS HAVE BEEN REVIEWED ACCORDING TO THESE REQUIREMENTS. ANY VARIANCE FROM ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
2. A COPY OF THE APPROVED PLANS MUST BE ON-SITE DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.
3. ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
4. THE AREA TO BE CLEARED AND GRADED MUST BE CLEARLY FLAGGED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO BEGINNING ANY WORK ON THE SITE. NO DISTURBANCES BEYOND THE CONSTRUCTION LIMITS ARE ALLOWED. THE CLEARING LIMITS SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
5. ANY EXCAVATED MATERIAL REMOVED FROM THE CONSTRUCTION SITE AND DEPOSITED ON PROPERTY WITHIN THE CITY LIMITS MUST BE DONE IN COMPLIANCE WITH A VALID CLEARING & GRADING PERMIT. LOCATIONS FOR THE MOBILIZATION AREA AND STOCKPILED MATERIAL MUST BE APPROVED BY THE ENGINEER AT LEAST 24 HOURS IN ADVANCE OF ANY STOCKPILING.
6. TURBIDITY AND pH MONITORING IS REQUIRED AS A CONDITION OF CLEARING AND GRADING PERMIT APPROVAL. TURBIDITY AND pH MONITORING MUST BE PERFORMED IN ACCORDANCE WITH THE APPROVED TURBIDITY MONITORING PLAN AND AS DIRECTED BY THE ENGINEER. MONITORING MUST CONTINUE DURING SITE (EARTHWORK) CONSTRUCTION UNTIL THE FINAL SIGN-OFF BY THE ENGINEER. SEE SHEETS 14 AND 17 FOR MONITORING LOCATIONS.
7. ANY PROJECT THAT IS SUBJECT TO RAINY SEASON RESTRICTIONS WILL NOT BE ALLOWED TO PERFORM CLEARING AND GRADING ACTIVITIES WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. THE RAINY SEASON EXTENDS FROM NOVEMBER 1ST THROUGH APRIL 30TH, AS DEFINED IN SECTION 23.76.093A OF THE CLEARING AND GRADING CODE.

CONSTRUCTION NOTES

(1) INSTALL CITY-PROVIDED PROJECT SIGN.

(2) CLEARING AND GRUBBING SHALL BE SELECTIVE WITHIN UPPER AND LOWER LOG JAM AREAS. LOG JAM LOGS SHALL BE WOVEN INTO EXISTING TREES AND VEGETATION TO MAXIMUM EXTENT POSSIBLE. SEE SHEET 3 FOR SELECTIVE CLEARING AND GRUBBING EXTENTS.

(3) CONTRACTOR SHALL VERIFY REQUIRED FENCE GAP TO ACCOMODATE 14'-WIDE GATE BY THE COB PRIOR TO THE START OF FENCE CONSTRUCTION.

SCALE IN FEET: 1"=10' SCALE IN FEET: 1"=20'

CALL 72 HOURS BEFORE YOU DIG 1-800-424-5555

NO	DATE	BY	APPR	REVISIONS
-	5/4/10	MBM	MBM	BID SUBMITTAL
-	4/13/10	MBM	MBM	100% SUBMITTAL - NOT FOR CONSTRUCTION

R.W. Beck, Inc.
1001 Fourth Avenue, Suite 2500
Seattle, WA 98154-1004
(206) 695-4700
An SAIC Company

BID SUBMITTAL

Approved By

DESIGN MANAGER ____ DATE

PROJECT MANAGER ____ DATE

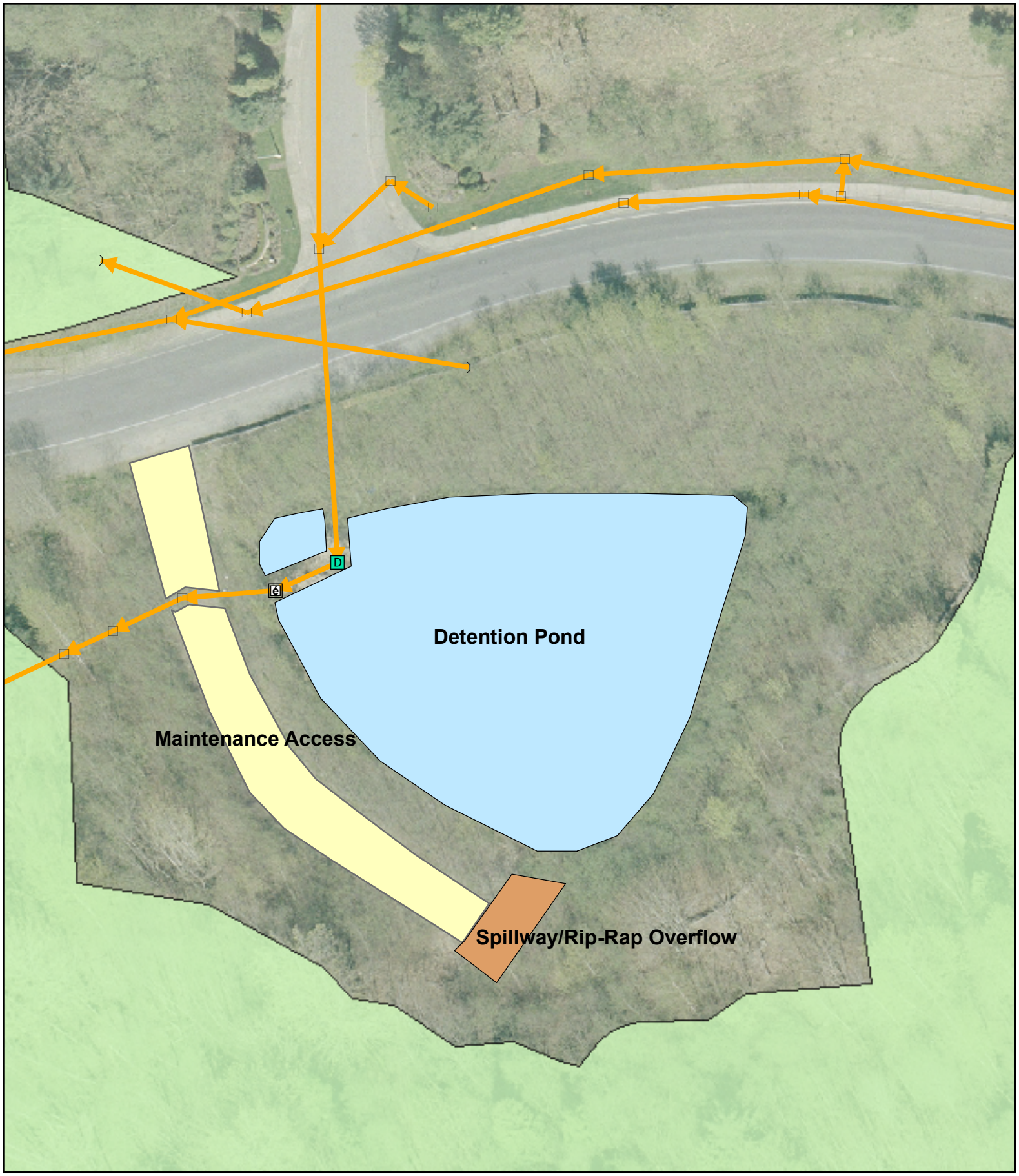
MARY WEBER	5/4/10
DESIGNED BY	DATE
JOHN FEATHERSTONE	5/4/10
DRAWN BY	DATE
RALPH NELSON	5/4/10
CHECKED BY	DATE

City of Bellevue
UTILITIES

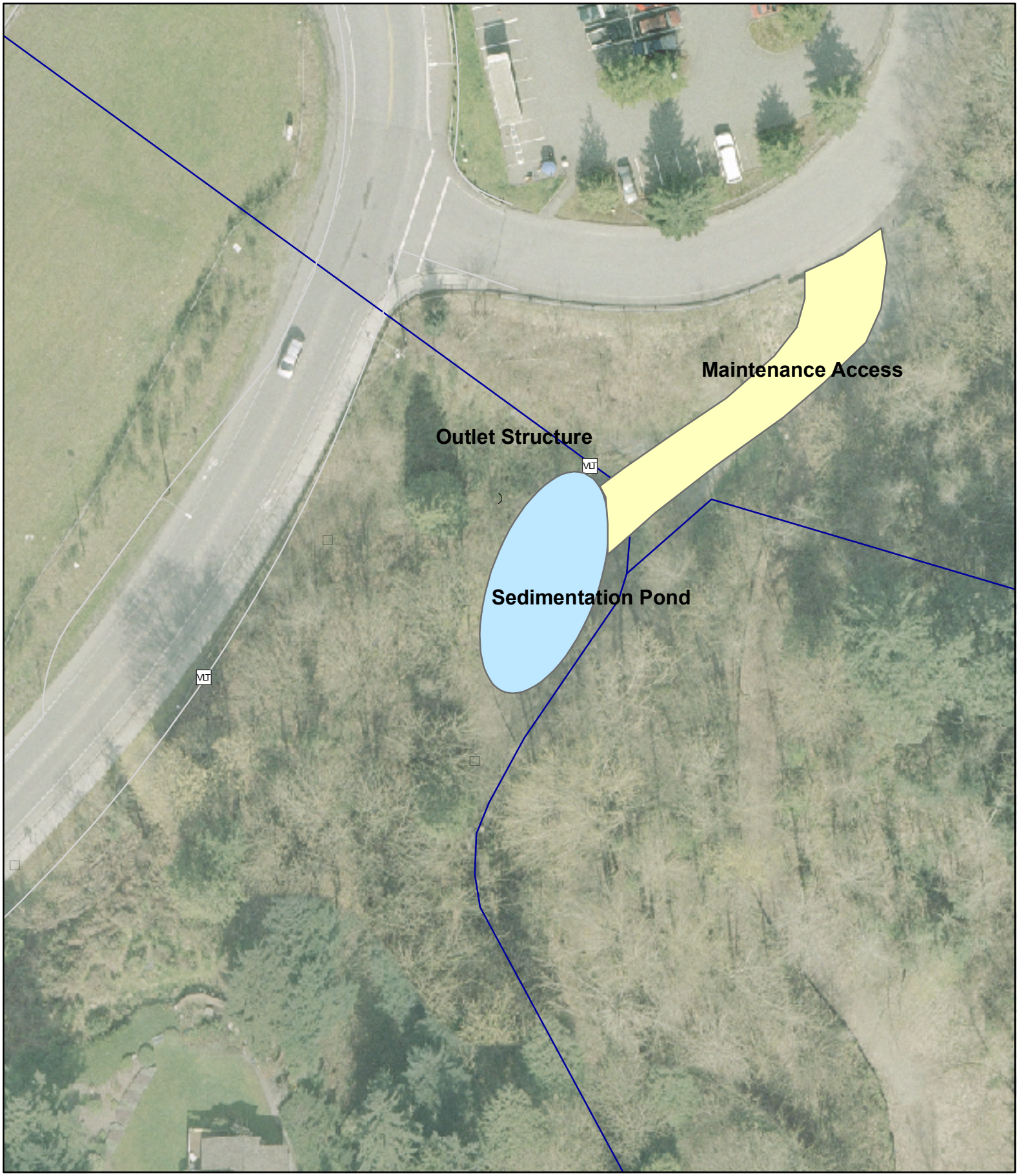
LOWER COAL CREEK OFF-LINE SEDIMENT POND

OFF-LINE SEDIMENT POND PLAN AND PROFILE

SEC 16, T 24N, R 5E | SHT 4 OF 18



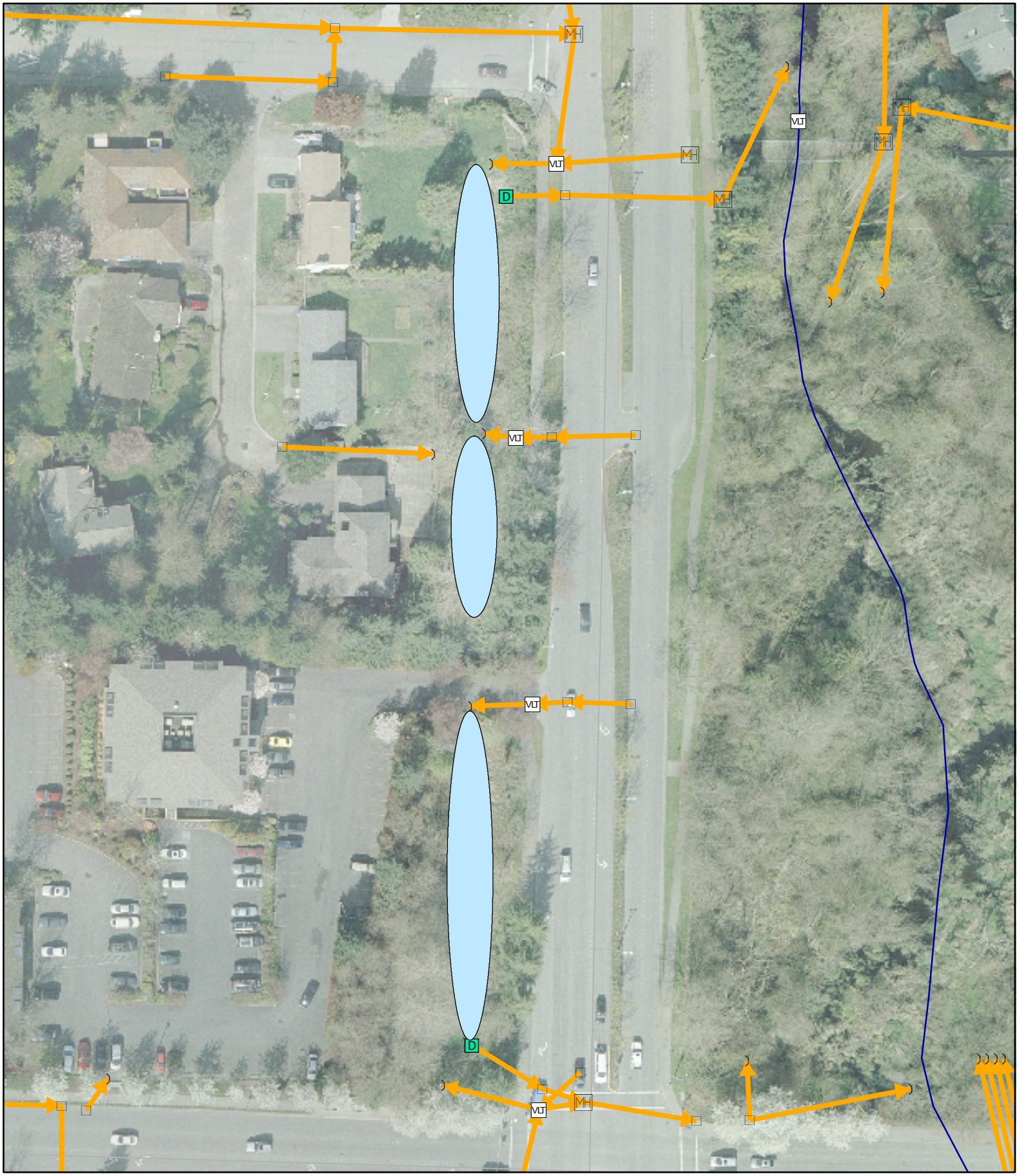
DP26790 - SE 63rd Detention Pond



Legend
Streams
Parks

D508 - Lakehurst Sedimentation Pond

N



DP5250 - NE 8th & 148th Detention Ponds

Attachment 'D' - Best Management Practices

Included on the following pages are detailed specification sheets related to BMP's that are commonly utilized during operations related to in stream and pond maintenance activities. The specifications sheets have been taken directly from the Regional Road Maintenance Endangered Species Act Program Guidelines and are used in the CESCL certification course. A table indicates the comparable BMP as defined in the City of Bellevue Clear and Grade code.

Regional Road Maintenance ESA Manual	Comparable CoB BMP
Cofferdam	
Dewatering	
Inlet protection	C209 Outlet protection
Large woody debris	
Sand bags	
Stream bypass	
Vactoring	
Mulching	C121 Mulching
Soil stabilization (blankets & mating)	C122 Nets and blankets

BMP: COFFERDAM

DESCRIPTION

A cofferdam is a temporary structure built into a waterway to enclose a construction area and reduce sediment pollution from construction work in and under water. Cofferdams can be made of steel, rock, sand bags, wood or aqua barriers.

PURPOSE

The purpose of this BMP includes, but is not limited to:

- Dewatering construction areas.

APPLICATIONS

This BMP may be used in construction activities such as culvert installation, bridges, piers, or abutments. It may be used in combination with other barriers and is commonly used in conjunction with stream bypass and/or pumps.

LIMITATIONS

This BMP should not be used:

- In deep water unless designed or reviewed by an engineer.

CONSTRUCTION GUIDELINES

- When used in watercourses or streams, cofferdams must be used in accordance with permit requirements.
- Refer to Appendix B for Fish Exclusion Protocols.
- Construction guidelines depend on cofferdam material selection. See pictures for construction details.

BMP MAINTENANCE

- During construction, inspect BMPs daily during the workweek. Schedule additional inspections during storm events. Make any required repairs.
- Repair gaps, holes or scour.

BMP REMOVAL

- Evaluate site to determine BMP is no longer needed (the area has stabilized- potential of sediment laden water exiting the area has passed).
- Remove sediment buildup in front of BMP.
- Remove BMP (recycle and/or re-use if applicable).
- Re-vegetate area disturbed by BMP removal (if applicable).

Sandbags used as a cofferdam

BMP: DEWATERING

DESCRIPTION

Dewatering can be used to keep water from a work area by using any or all of the following: pump, barrier, vactor, or bypass culvert.

PURPOSE

The purpose of this BMP includes, but is not limited to:

- Allowing work to be performed in dry conditions.
- Reducing the transport of soil particles by flowing water.
- Reducing the liquefaction of soils.

APPLICATIONS

This BMP may be used in, but not limited to, ditches, watercourses or streams, channels, swales and excavations. It will generally be used in combination with other BMPs.

LIMITATIONS

This BMP should not be used:

- Where flows are greater than pump capacity.

CONSTRUCTION GUIDELINES

- Determine if the project will require continuous dewatering.
- Schedule pumping, monitoring and maintenance activities accordingly.
- Dewatering must be used in accordance with applicable design and/or permit conditions.
- Refer to Appendix B for Fish Exclusion Protocols.
- Install a "Keep Water from Work Area" BMP.
- Install dewatering devices.
- Install site specific barrier, prior to dewatering, to prevent exterior water from entering construction area.
- Ensure water discharged from the site is not allowed to cause erosion.
- Dewatered water will be discharged to:
  - A containment device.
  - A sanitary sewage system.
  - Other BMPs to remove water borne soil particles prior to the water being reintroduced to a storm drainage system, water course or stream.

BMP MAINTENANCE

- Schedule pumping, monitoring and maintenance activities in accordance with dewatering needs.
- During construction, inspect BMPs daily during the workweek. Schedule additional inspections during storm events. Make any required repairs immediately.
- Inspect bypass, pump, and barrier periodically. Make necessary repairs.
- Check for erosion at discharge. Repair or move as necessary.
- Have adequate fuel supply and backup pumps in the event of mechanical failure.

BMP REMOVAL

- Remove BMP (recycle and/or re-use if applicable).
- Reintroduce water gradually.
- Re-vegetate area disturbed by BMP removal (if applicable).

BMP: INLET PROTECTION

DESCRIPTION

Inlet protection is a sediment filter located at the inlet to a storm drainage conveyance. It may be an external structure such as a filter fence box or a gravel berm. Inlet protection may also be an internal device such as a silt sock or a silt trap.

PURPOSE

The purpose of this BMP includes, but is not limited to:

- Reducing soil particles from entering storm drainage systems.

APPLICATIONS

This BMP may be used in ditches at the inlet to enclosed drainage systems. They may also be used in manholes or catch basins. This BMP may be used in combination with other BMPs.

LIMITATIONS

This BMP should not be used:

- Where there are traffic conflicts.
- In areas where it creates excessive ponding.
- To remove excessive fines.

CONSTRUCTION GUIDELINES

- Refer to sketches on following pages for details and specific construction guidelines.

BMP MAINTENANCE

- During construction, inspect BMPs daily during the workweek. Schedule additional inspections during storm events. Make any required repairs.
- Sediment should be removed when deposits reach one-half the height of the BMP.

BMP REMOVAL

- Evaluate site to determine BMP is no longer needed (the area has

stabilized- potential of sediment laden water exiting the area has passed).

- Remove sediment buildup in front of BMP.
- Remove BMP (recycle and/or re-use if applicable).
- Re-vegetate area disturbed by BMP removal (if applicable).

Inlet protection: filter fence surrounding catch basin to reduce soil particles from entering drainage system

BMP: LARGE WOODY DEBRIS

DESCRIPTION

Large woody debris is any large piece of woody material (including the trunk and root mass) that intrudes or is imbedded in the stream channel. Woody debris affects local flow velocities, streambed and streambank stability, and local stream characteristics. For example: see DOE, WSDFW, and/or King County Bank Stabilization Guidelines. Large Woody Debris is used to reduce water velocity/erosive forces and to provide habitat for fish.

PURPOSE

The purpose of this BMP includes, but is not limited to:

- Improving aquatic habitat by re-directing flows away from eroding banks, providing cover, creating pools and storing sediment.
- Providing stream bed and bank stabilization.

APPLICATIONS

When incorporating woody material into projects, it is necessary to identify the desired engineering performance and the desired habitat benefits. Each project must be specifically tailored to meet the engineering objectives identified for the habitat requirements of the target species. It can be used in combination with other BMPs.

LIMITATIONS

This BMP should not be used:

- When the specific design requirements and desired habitat benefits have not been identified.
- Without consideration of the factors that influence the relative permanence of the wood in the stream channel.

CONSTRUCTION GUIDELINES

- These will vary based on existing site conditions, design features, size and shape of the wood, its exposure to the forces exerted by moving water, and its resistance to movement because of wedging, or embedding with adjacent materials.
- Construct in accordance with design, specifications and permit conditions.

BMP MAINTENANCE

- Monitor the large woody debris to ensure it remains "as built".
- Consult a qualified biologist for specific repairs.

BMP REMOVAL

- BMP removal is not applicable.

Large woody debris placed in streambed to provide salmonid refuge. Note use of streambed gravel, dewatering with pump, and mulching

BMP: SANDBAG

DESCRIPTION

A sandbag is a pre-manufactured cloth or plastic bag (polypropylene) filled with sand or gravel. Sandbags can be used to keep water from the work area, for settling and reduction in water velocity/erosive forces.

PURPOSE

The purpose of this BMP includes, but is not limited to:

- A barrier.
- A protective barrier against flooding.
- Using in combination with other methods, to form a cofferdam.
- Using as a sediment filter (when used with clean pea gravel).
- Using as a ballast.
- Other multi-purpose situations.

APPLICATIONS

This BMP may be used during emergencies to control the flow and level of water. It may be used in combination with other barriers.

This BMP may be used during construction to form dewatered areas, for example, cofferdams, and for various other impromptu situations.

LIMITATIONS

This BMP should not be used:

- Where permit conditions state otherwise.
- When maintenance activities conducted in locations could reduce actual or potential high flow salmonid refuge functions, this BMP will be used if required by permit conditions.

CONSTRUCTION GUIDELINES

- When used in watercourses or streams, this BMP must be used in accordance with permit requirements.
- Refer to Appendix B for Fish Exclusion Protocols.
- If sandbag filling is to be used as streambed gravel, it must be washed prior to filling bags, appropriately sized according to design and placed in accordance with permit conditions. Wash rock off-site (at a location where washed water can not enter watercourses, streams or wetlands)

until water runs clear.
- Secure ends of sandbags to ensure material does not scatter.
- When used as a barrier stack bags tightly together and in alternating, brick-layer fashion.

BMP MAINTENANCE

- During construction, inspect BMP's daily during the workweek. Schedule additional inspections during storm events. Make any required repairs.
- Replace damaged sandbags.
- Repair damaged sandbag berm due to end runs or undercutting.
- Sediment should be removed when deposits reach one-half the height of the BMP.
- Check bags often for seepage and replace or add as needed.

BMP REMOVAL

- Evaluate site to determine BMP is no longer needed (the area has stabilized- potential of sediment laden water exiting the area has passed).
- Remove sediment buildup in front of BMP.
- Remove BMP (recycle and/or re-use if applicable).
- Re-vegetate area disturbed by BMP removal (if applicable).
- Gravel filled bags may be split and the contents left in place, in streams, when so stated in the specific permit conditions (Bags are to be removed from job site).

Sandbags acting as a barrier

BMP: STREAM BYPASS

DESCRIPTION

A stream bypass is a method of diverting the main flow of a stream to a temporary alternate route during construction. It is used in conjunction with a cofferdam and pumps. A stream bypass may be constructed by various methods or combination of methods such as earthen berms, sand bags, ecology blocks and aqua barriers.

PURPOSE

The purpose of this BMP includes, but is not limited to:

- Diverting flowing water away from or around a construction site.
- Minimizing sedimentation.
- In limited cases, it may provide for fish passage.

APPLICATIONS

This BMP may be used at stream crossings during culvert replacement, at bridge repair sites, and other sites where the stream flow cannot be interrupted. It may be used in combination with other barriers.

CONSTRUCTION GUIDELINES

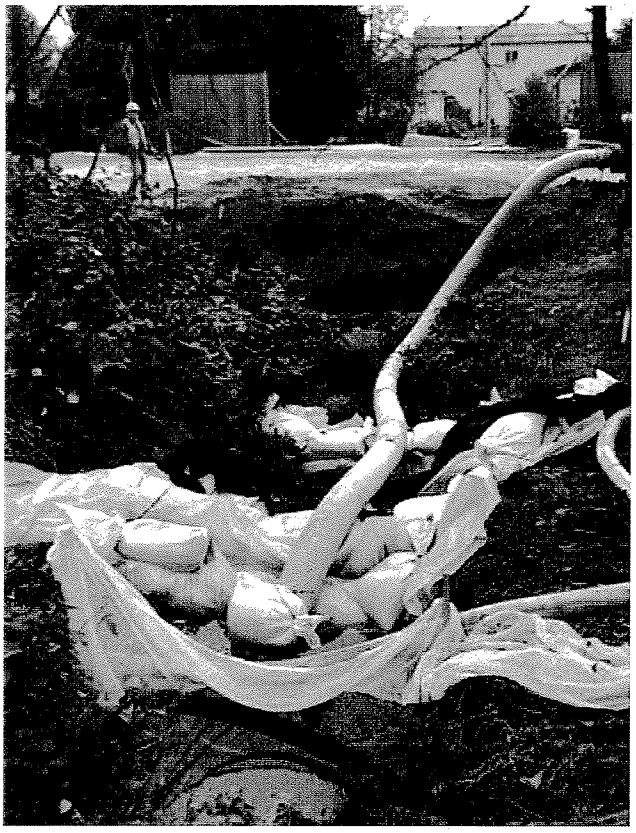
- Stream bypass BMPs must be installed according to applicable permit requirements.
- Refer to Appendix B for Fish Exclusion Protocols.
- Determine best method for specific site.
- Discuss strategy with crew.
- Work quickly to avoid water contamination by sediment.
- Ensure pipe outlet is stabilized to prevent scour and erosion.
- Pump and bypass should be designed or reviewed by an engineer to ensure capacity can handle peak flows.

BMP MAINTENANCE

- Inspect bypass, pump, and dam periodically. Repair any leaks.
- Check for scour at bypass outfall. Repair or move as necessary.
- Have adequate fuel supply and backup pumps in the event of mechanical failure.
- Inspect fish isolation nets to ensure complete exclusion. Remove any accumulated debris from isolation net.

BMP REMOVAL

- Remove BMP when in water work is complete.
- Fish passage for all life stages will be restored following in water work.
- Remove BMP (recycle and/or re-use if applicable).
- Re-vegetate area disturbed by BMP removal (if applicable).



A stream bypass used to divert water around a construction site

BMP: VACTORING

DESCRIPTION

Vactoring is the use of a truck mounted drainage system cleaning device.

The cleaning device operates on the principle of large volume, high-speed air movement to lift water, soil particles/sediment, contaminants and debris. A large tube conveys the collected materials into a tank mounted on the truck. The cleaning device also includes a freshwater supply and high-pressure pump system to flush and clean pipes and structures. Collected material is transported in the truck to approved disposal sites.

PURPOSE

The purpose of this BMP includes, but is not limited to:

- Cleaning drainage systems.
- Dewatering the work area.

APPLICATIONS

This BMP may be used to clean and/or dewater enclosed drainage systems, open drainage systems, excavations and settling ponds. It may be used in conjunction with other BMPs.

LIMITATIONS

This BMP should not be used:

- Where the flow exceeds the capacity of the cleaning device.
- To remove large debris.

CONSTRUCTION GUIDELINES

- When used in a watercourse or stream, vactoring should be done according to applicable permit requirements.
- Reduce potential for sediments and debris from re-entering water.
- If entering a confined space use appropriate air testing and entry procedures.
- Prepare work sequence to address backup equipment or project phasing when tank is full.

BMP MAINTENANCE

- Follow manufacturer's operation and service guidelines.

BMP REMOVAL

- BMP removal is not applicable.

Vactor truck removing sediment from catch basin

BMP: MULCHING

DESCRIPTION

Mulching is the application of straw, wood chips, or other suitable materials on the soil surface applied manually or by machine. This BMP is used to reduce potential for soil becoming water or air borne and to reduce water velocity/ erosive forces after vegetation establishment.

PURPOSE

The purpose of this BMP includes, but is not limited to:

- Reducing erosion by protecting the soil surface from raindrop impact or wind.
- Decreasing surface water or wind velocity impacts.
- Fostering the growth of vegetation by increasing available moisture and providing insulation against extreme heat and cold.

APPLICATIONS

This BMP can be used in areas to provide protection to the soil surface. Areas that have been seeded can be mulched to provide additional protection. This BMP may be used in combination with plantings of trees, shrubs, certain ground covers or in conjunction with seeding.

LIMITATIONS

This BMP should not be used:

- On slopes steeper than 2 horizontal to 1 vertical.
- In watercourse and streams.
- In ditches where water flow is continuous.

CONSTRUCTION GUIDELINES

- When used near watercourses or streams, this BMP must be used in accordance with permit requirements.
- Mulch should be applied so that the soil is covered sufficiently enough to allow seeds to germinate, but also protects the soil from erosion.
- Nets and matting may be used in combination with mulch.
- Various types and sizes of mulch are available.
- If used to stabilize soil from wind forces, the mulch needs to be tilled or incorporated into the soil.

BMP MAINTENANCE

- During construction, inspect BMPs daily during the workweek. Schedule additional inspections during storm events. Make any required repairs.
- Additional mulch should be applied where erosion or scouring occurs.
- If a tear occurs in the cover netting or matting, repair as necessary.

BMP REMOVAL

- BMP removal is not necessary under normal circumstances.

Using straw to reduce erosion in a slide area prior to a major stabilizing project

BMP: SOIL STABILIZATION (BLANKETS AND MATTING)

DESCRIPTION

Soil stabilization can be accomplished through the installation of a protective blanket (covering) or a soil stabilization mat on a prepared planting area, a steep slope, channel and/or shoreline.

PURPOSE

The purpose of this BMP includes, but is not limited to:

- Reducing erosion.
- Providing a microclimate that protects young vegetation and promotes its establishment.
- "Reinforcing the turf" to resist the forces of erosion during storm events.

APPLICATIONS

This BMP may be used on short, steep slopes where erosion hazard is high and planting is likely to be slow in establishment. It may also be used on stream banks or tidal shorelines where moving water is likely to wash out new plantings. Soil stabilization blankets and matting may be used in combination with other BMPs.

LIMITATIONS

This BMP should not be used:

- In watercourses or streams without proper permits.

CONSTRUCTION GUIDELINES

- Installation is site specific.
- See following drawings and specifications.

BMP MAINTENANCE

- If vegetation is incorporated, inspect during the plant establishment period. Re-plant, due to mortality, as necessary.
- Schedule additional inspections during storm events. Check for erosion or undermining; any required repairs shall be made.

BMP REMOVAL

- BMP removal is not necessary.

Stabilizing the soil in a sensitive area using blankets

Lining a ditch with soil stabilization matting to reduce erosion

Stabilizing the soil using matting and hydroseeding

4.6 Maintenance Standards for Drainage Facilities

The facility-specific maintenance standards contained in this section are intended to be conditions for determining if maintenance actions are required as identified through inspection. They are not intended to be measures of the facility's required condition at all times between inspections. In other words, exceedence of these conditions at any time between inspections and/or maintenance does not automatically constitute a violation of these standards. However, based upon inspection observations, the inspection and maintenance schedules shall be adjusted to minimize the length of time that a facility is in a condition that requires a maintenance action.

Table 4.5 – Maintenance Standards

No. 1 – Detention Ponds

General	Trash & Debris	Any trash and debris which exceed 5 cubic feet per 1,000 square feet (this is about equal to the amount of trash it would take to fill up one standard size garbage can). In general, there should be no visual evidence of dumping. If less than threshold all trash and debris will be removed as part of next scheduled maintenance.	Trash and debris cleared from site.
	Poisonous Vegetation and noxious weeds	Any poisonous or nuisance vegetation which may constitute a hazard to maintenance personnel or the public. Any evidence of noxious weeds as defined by State or local regulations. (Apply requirements of adopted IPM policies for the use of herbicides).	No danger of poisonous vegetation where maintenance personnel or the public might normally be. (Coordinate with local health department) Complete eradication of noxious weeds may not be possible. Compliance with State or local eradication policies required
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants (Coordinate removal/cleanup with local water quality response agency).	~~No contaminants or pollutants present.~~
	Rodent Holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents destroyed and dam or berm repaired. (Coordinate with local health department; coordinate with Ecology Dam Safety Office if pond exceeds 10 acre-feet.)

No. 1 – Detention Ponds

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
	Beaver Dams	Dam results in change or function of the facility.	Facility is returned to design function. (Coordinate trapping of beavers and removal of dams with appropriate permitting agencies)
	Insects	When insects such as wasps and hornets interfere with maintenance activities.	Insects destroyed or removed from site. Apply insecticides in compliance with adopted IPM policies
	Tree Growth and Hazard Trees	Tree growth does not allow maintenance access or interferes with maintenance activity (i.e., slope mowing, silt removal, vactoring, or equipment movements). If trees are not interfering with access or maintenance, do not remove If dead, diseased, or dying trees are identified (Use a certified Arborist to determine health of tree or removal requirements)	Trees do not hinder maintenance activities. Harvested trees should be recycled into mulch or other beneficial uses (e.g., alders for firewood). Remove hazard Trees
Side Slopes of Pond	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted berm embankment.	Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction. If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.
Storage Area	Sediment	Accumulated sediment that exceeds 10% of the designed pond depth unless otherwise specified or affects inletting or outletting condition of the facility.	Sediment cleaned out to designed pond shape and depth; pond reseeded if necessary to control erosion.
	Liner (If Applicable)	Liner is visible and has more than three 1/4-inch holes in it.	Liner repaired or replaced. Liner is fully covered.

No. 1 – Detention Ponds

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
Pond Berms (Dikes)	Settlements	Any part of berm which has settled 4 inches lower than the design elevation. If settlement is apparent, measure berm to determine amount of settlement. Settling can be an indication of more severe problems with the berm or outlet works. A licensed civil engineer should be consulted to determine the source of the settlement.	Dike is built back to the design elevation.
	Piping	Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue. (Recommend a Goethechnical engineer be called in to inspect and evaluate condition and recommend repair of condition.	Piping eliminated. Erosion potential resolved.
Emergency Overflow/ Spillway and Berms over 4 feet in height.	Tree Growth	Tree growth on emergency spillways creates blockage problems and may cause failure of the berm due to uncontrolled overtopping. Tree growth on berms over 4 feet in height may lead to piping through the berm which could lead to failure of the berm.	Trees should be removed. If root system is small (base less than 4 inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored. A licensed civil engineer should be consulted for proper berm/spillway restoration.
	Piping	Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue. (Recommend a Goethechnical engineer be called in to inspect and evaluate condition and recommend repair of condition.	Piping eliminated. Erosion potential resolved.
Emergency Overflow/ Spillway	Emergency Overflow/ Spillway	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out flow path of spillway. (Rip-rap on inside slopes need not be replaced.)	Rocks and pad depth are restored to design standards.
	Erosion	See “Side Slopes of Pond”	

No. 2 – Infiltration

General	Trash & Debris	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Poisonous/Noxious Vegetation	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Contaminants and Pollution	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Rodent Holes	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1)
Storage Area	Sediment	Water ponding in infiltration pond after rainfall ceases and appropriate time allowed for infiltration. (A percolation test pit or test of facility indicates facility is only working at 90% of its designed capabilities. If two inches or more sediment is present, remove).	Sediment is removed and/or facility is cleaned so that infiltration system works according to design.
Filter Bags (if applicable)	Filled with Sediment and Debris	Sediment and debris fill bag more than 1/2 full.	Filter bag is replaced or system is redesigned.
Rock Filters	Sediment and Debris	By visual inspection, little or no water flows through filter during heavy rain storms.	Gravel in rock filter is replaced.
Side Slopes of Pond	Erosion	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Emergency Overflow Spillway and Berms over 4 feet in height.	Tree Growth	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Piping	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Emergency Overflow Spillway	Rock Missing	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Erosion	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Pre-settling Ponds and Vaults	Facility or sump filled with Sediment and/or debris	6" or designed sediment trap depth of sediment.	Sediment is removed.

No. 3 – Closed Detention Systems (Tanks/Vaults)

Storage Area	Plugged Air Vents	One-half of the cross section of a vent is blocked at any point or the vent is damaged.	Vents open and functioning.
	Debris and Sediment	Accumulated sediment depth exceeds 10% of the diameter of the storage area for 1/2 length of storage vault or any point depth exceeds 15% of diameter. (Example: 72-inch storage tank would require cleaning when sediment reaches depth of 7 inches for more than 1/2 length of tank.)	All sediment and debris removed from storage area.
	Joints Between Tank/Pipe Section	Any openings or voids allowing material to be transported into facility. (Will require engineering analysis to determine structural stability).	All joint between tank/pipe sections are sealed.
	Tank Pipe Bent Out of Shape	Any part of tank/pipe is bent out of shape more than 10% of its design shape. (Review required by engineer to determine structural stability).	Tank/pipe repaired or replaced to design.
	Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch and any evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determines that the vault is not structurally sound. Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or any evidence of soil particles entering the vault through the walls.	Vault replaced or repaired to design specifications and is structurally sound. No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe.
Manhole	Cover Not in Place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Manhole is closed.
	Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread (may not apply to self-locking lids).	Mechanism opens with proper tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. Intent is to keep cover from sealing off access to maintenance.	Cover can be removed and reinstalled by one maintenance person.
	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.
Catch Basins	See “Catch Basins” (No. 5)	See “Catch Basins” (No. 5).	See “Catch Basins” (No. 5).

No. 4 – Control Structure/Flow Restrictor

General	Trash and Debris (Includes Sediment)	Material exceeds 25% of sump depth or 1 foot below orifice plate.	Control structure orifice is not blocked. All trash and debris removed.
	Structural Damage	Structure is not securely attached to manhole wall.	Structure securely attached to wall and outlet pipe.
		Structure is not in upright position (allow up to 10% from plumb).	Structure in correct position.
		Connections to outlet pipe are not watertight and show signs of rust.	Connections to outlet pipe are water tight; structure repaired or replaced and works as designed.
		Any holes--other than designed holes--in the structure.	Structure has no holes other than designed holes.
Cleanout Gate	Damaged or Missing	Cleanout gate is not watertight or is missing.	Gate is watertight and works as designed.
		Gate cannot be moved up and down by one maintenance person.	Gate moves up and down easily and is watertight.
		Chain/rod leading to gate is missing or damaged.	Chain is in place and works as designed.
		Gate is rusted over 50% of its surface area.	Gate is repaired or replaced to meet design standards.
Orifice Plate	Damaged or Missing	Control device is not working properly due to missing, out of place, or bent orifice plate.	Plate is in place and works as designed.
	Obstructions	Any trash, debris, sediment, or vegetation blocking the plate.	Plate is free of all obstructions and works as designed.
Overflow Pipe	Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe.	Pipe is free of all obstructions and works as designed.
Manhole	See “Closed Detention Systems” (No. 3).	See “Closed Detention Systems” (No. 3).	See “Closed Detention Systems” (No. 3).
Catch Basin	See “Catch Basins” (No. 5).	See “Catch Basins” (No. 5).	See “Catch Basins” (No. 5).

No. 5 – Catch Basins

General	Trash & Debris	Trash or debris which is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%.	No Trash or debris located immediately in front of catch basin or on grate opening.
		Trash or debris (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe.	No trash or debris in the catch basin.
		Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.	Inlet and outlet pipes free of trash or debris.
		Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation present within the catch basin.
	Sediment	Sediment (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe.	No sediment in the catch basin
	Structure Damage to Frame and/or Top Slab	Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch (Intent is to make sure no material is running into basin).	Top slab is free of holes and cracks.
		Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached	Frame is sitting flush on the riser rings or top slab and firmly attached.
	Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound.	Basin replaced or repaired to design standards.
		Grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	Pipe is regrouted and secure at basin wall.
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.
	Vegetation	Vegetation growing across and blocking more than 10% of the basin opening.	No vegetation blocking opening to basin.
		Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.	No vegetation or root growth present.

No. 5 – Catch Basins

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
	Contamination and Pollution	See "Detention Ponds" (No. 1).	No pollution present.
Catch Basin Cover	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Catch basin cover is closed
	Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.	Mechanism opens with proper tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. (Intent is keep cover from sealing off access to maintenance.)	Cover can be removed by one maintenance person.
Ladder	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
Metal Grates (If Applicable)	Grate opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.
	Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.
	Damaged or Missing.	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.

No. 6 – Debris Barriers (e.g., Trash Racks)

General	Trash and Debris	Trash or debris that is plugging more than 20% of the openings in the barrier.	Barrier cleared to design flow capacity.
Metal	Damaged/ Missing Bars.	Bars are bent out of shape more than 3 inches.	Bars in place with no bends more than 3/4 inch.
		Bars are missing or entire barrier missing.	Bars in place according to design.
		Bars are loose and rust is causing 50% deterioration to any part of barrier.	Barrier replaced or repaired to design standards.
	Inlet/Outlet Pipe	Debris barrier missing or not attached to pipe	Barrier firmly attached to pipe

No. 7 – Energy Dissipaters

External:			
Rock Pad	Missing or Moved Rock	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil.	Rock pad replaced to design standards.
	Erosion	Soil erosion in or adjacent to rock pad.	Rock pad replaced to design standards.
Dispersion Trench	Pipe Plugged with Sediment	Accumulated sediment that exceeds 20% of the design depth.	Pipe cleaned/flushed so that it matches design.
	Not Discharging Water Properly	Visual evidence of water discharging at concentrated points along trench (normal condition is a "sheet flow" of water along trench). Intent is to prevent erosion damage.	Trench redesigned or rebuilt to standards.
	Perforations Plugged.	Over 1/2 of perforations in pipe are plugged with debris and sediment.	Perforated pipe cleaned or replaced.
	Water Flows Out Top of "Distributor" Catch Basin.	Maintenance person observes or receives credible report of water flowing out during any storm less than the design storm or its causing or appears likely to cause damage.	Facility rebuilt or redesigned to standards.
	Receiving Area Over-Saturated	Water in receiving area is causing or has potential of causing landslide problems.	No danger of landslides.
Internal:			
Manhole/Chamber	Worn or Damaged Post, Baffles, Side of Chamber	Structure dissipating flow deteriorates to 1/2 of original size or any concentrated worn spot exceeding one square foot which would make structure unsound.	Structure replaced to design standards.
	Other Defects	See "Catch Basins" (No. 5).	See "Catch Basins" (No. 5).

No. 8 – Typical Biofiltration Swale

General	Sediment Accumulation on Grass	Sediment depth exceeds 2 inches.	Remove sediment deposits on grass treatment area of the bio-swale. When finished, swale should be level from side to side and drain freely toward outlet. There should be no areas of standing water once inflow has ceased.
	Standing Water	When water stands in the swale between storms and does not drain freely.	Any of the following may apply: remove sediment or trash blockages, improve grade from head to foot of swale, remove clogged check dams, add underdrains or convert to a wet biofiltration swale.
	Flow spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed through entire swale width.	Level the spreader and clean so that flows are spread evenly over entire swale width.
	Constant Baseflow	When small quantities of water continually flow through the swale, even when it has been dry for weeks, and an eroded, muddy channel has formed in the swale bottom.	Add a low-flow pea-gravel drain the length of the swale or by-pass the baseflow around the swale.
	Poor Vegetation Coverage	When grass is sparse or bare or eroded patches occur in more than 10% of the swale bottom.	Determine why grass growth is poor and correct that condition. Re-plant with plugs of grass from the upper slope: plant in the swale bottom at 8-inch intervals. Or re-seed into loosened, fertile soil.
	Vegetation	When the grass becomes excessively tall (greater than 10-inches); when nuisance weeds and other vegetation starts to take over.	Mow vegetation or remove nuisance vegetation so that flow not impeded. Grass should be mowed to a height of 3 to 4 inches. Remove grass clippings.
	Excessive Shading	Grass growth is poor because sunlight does not reach swale.	If possible, trim back over-hanging limbs and remove brushy vegetation on adjacent slopes.
	Inlet/Outlet	Inlet/outlet areas clogged with sediment and/or debris.	Remove material so that there is no clogging or blockage in the inlet and outlet area.
	Trash and Debris Accumulation	Trash and debris accumulated in the bio-swale.	Remove trash and debris from bioswale.
	Erosion/Scouring	Eroded or scoured swale bottom due to flow channelization, or higher flows.	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. If bare areas are large, generally greater than 12 inches wide, the swale should be re-graded and re-seeded. For smaller bare areas, overseed when bare spots are evident, or take plugs of grass from the upper slope and plant in the swale bottom at 8-inch intervals.

No. 9 – Wet Biofiltration Swale

General	Sediment Accumulation	Sediment depth exceeds 2-inches in 10% of the swale treatment area.	Remove sediment deposits in treatment area.
	Water Depth	Water not retained to a depth of about 4 inches during the wet season.	Build up or repair outlet berm so that water is retained in the wet swale.
	Wetland Vegetation	Vegetation becomes sparse and does not provide adequate filtration, OR vegetation is crowded out by very dense clumps of cattail, which do not allow water to flow through the clumps.	Determine cause of lack of vigor of vegetation and correct. Replant as needed. For excessive cattail growth, cut cattail shoots back and compost off-site. Note: normally wetland vegetation does not need to be harvested unless die-back is causing oxygen depletion in downstream waters.
	Inlet/Outlet	Inlet/outlet area clogged with sediment and/or debris.	Remove clogging or blockage in the inlet and outlet areas.
	Trash and Debris Accumulation	See "Detention Ponds" (No. 1).	Remove trash and debris from wet swale.
	Erosion/Scouring	Swale has eroded or scoured due to flow channelization, or higher flows.	Check design flows to assure swale is large enough to handle flows. By-pass excess flows or enlarge swale. Replant eroded areas with fibrous-rooted plants such as Juncus effusus (soft rush) in wet areas or snowberry (Symphoricarpos albus) in dryer areas.

No. 10 – Filter Strips

General	Sediment Accumulation on Grass	Sediment depth exceeds 2 inches.	Remove sediment deposits, re-level so slope is even and flows pass evenly through strip.
	Vegetation	When the grass becomes excessively tall (greater than 10-inches); when nuisance weeds and other vegetation starts to take over.	Mow grass, control nuisance vegetation, such that flow not impeded. Grass should be mowed to a height between 3-4 inches.
	Trash and Debris Accumulation	Trash and debris accumulated on the filter strip.	Remove trash and Debris from filter.
	Erosion/Scouring	Eroded or scoured areas due to flow channelization, or higher flows.	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. The grass will creep in over the rock in time. If bare areas are large, generally greater than 12 inches wide, the filter strip should be re-graded and re-seeded. For smaller bare areas, overseed when bare spots are evident.
	Flow spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed through entire filter width.	Level the spreader and clean so that flows are spread evenly over entire filter width.

No. 11 – Wetponds

General	Water level	First cell is empty, doesn't hold water.	Line the first cell to maintain at least 4 feet of water. Although the second cell may drain, the first cell must remain full to control turbulence of the incoming flow and reduce sediment resuspension.
	Trash and Debris	Accumulation that exceeds 1 CF per 1000-SF of pond area.	Trash and debris removed from pond.
	Inlet/Outlet Pipe	Inlet/Outlet pipe clogged with sediment and/or debris material.	No clogging or blockage in the inlet and outlet piping.
	Sediment Accumulation in Pond Bottom	Sediment accumulations in pond bottom that exceeds the depth of sediment zone plus 6-inches, usually in the first cell.	Sediment removed from pond bottom.
	Oil Sheen on Water	Prevalent and visible oil sheen.	Oil removed from water using oil-absorbent pads or vactor truck. Source of oil located and corrected. If chronic low levels of oil persist, plant wetland plants such as Juncus effusus (soft rush) which can uptake small concentrations of oil.
	Erosion	Erosion of the pond's side slopes and/or scouring of the pond bottom, that exceeds 6-inches, or where continued erosion is prevalent.	Slopes stabilized using proper erosion control measures and repair methods.
	Settlement of Pond Dike/Berm	Any part of these components that has settled 4-inches or lower than the design elevation, or inspector determines dike/berm is unsound.	Dike/berm is repaired to specifications.
	Internal Berm	Berm dividing cells should be level.	Berm surface is leveled so that water flows evenly over entire length of berm.
	Overflow Spillway	Rock is missing and soil is exposed at top of spillway or outside slope.	Rocks replaced to specifications.

No. 12 – Wetvaults

General	Trash/Debris Accumulation	Trash and debris accumulated in vault, pipe or inlet/outlet (includes floatables and non-floatables).	Remove trash and debris from vault.
	Sediment Accumulation in Vault	Sediment accumulation in vault bottom exceeds the depth of the sediment zone plus 6-inches.	Remove sediment from vault.
	Damaged Pipes	Inlet/outlet piping damaged or broken and in need of repair.	Pipe repaired and/or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened or removed, especially by one person.	Pipe repaired or replaced to proper working specifications.
	Ventilation	Ventilation area blocked or plugged.	Blocking material removed or cleared from ventilation area. A specified % of the vault surface area must provide ventilation to the vault interior (see design specifications).
	Vault Structure Damage - Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab	Maintenance/inspection personnel determine that the vault is not structurally sound.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound.
		Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection staff.	Baffles repaired or replaced to specifications.
	Access Ladder Damage	Ladder is corroded or deteriorated, not functioning properly, not attached to structure wall, missing rungs, has cracks and/or misaligned. Confined space warning sign missing.	Ladder replaced or repaired to specifications, and is safe to use as determined by inspection personnel. Replace sign warning of confined space entry requirements. Ladder and entry notification complies with OSHA standards.

No. 13 – Sand Filters (above ground/open)

Above Ground (open sand filter)	Sediment Accumulation on top layer	Sediment depth exceeds 1/2-inch.	No sediment deposit on grass layer of sand filter that would impede permeability of the filter section.
	Trash and Debris Accumulations	Trash and debris accumulated on sand filter bed.	Trash and debris removed from sand filter bed.
	Sediment/ Debris in Clean-Outs	When the clean-outs become full or partially plugged with sediment and/or debris.	Sediment removed from clean-outs.
	Sand Filter Media	Drawdown of water through the sand filter media takes longer than 24-hours, and/or flow through the overflow pipes occurs frequently.	Top several inches of sand are scraped. May require replacement of entire sand filter depth depending on extent of plugging (a sieve analysis is helpful to determine if the lower sand has too high a proportion of fine material).
	Prolonged Flows	Sand is saturated for prolonged periods of time (several weeks) and does not dry out between storms due to continuous base flow or prolonged flows from detention facilities.	Low, continuous flows are limited to a small portion of the facility by using a low wooden divider or slightly depressed sand surface.
	Short Circuiting	When flows become concentrated over one section of the sand filter rather than dispersed.	Flow and percolation of water through sand filter is uniform and dispersed across the entire filter area.
	Erosion Damage to Slopes	Erosion over 2-inches deep where cause of damage is prevalent or potential for continued erosion is evident.	Slopes stabilized using proper erosion control measures.
	Rock Pad Missing or Out of Place	Soil beneath the rock is visible.	Rock pad replaced or rebuilt to design specifications.
	Flow Spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed across sand filter.	Spreader leveled and cleaned so that flows are spread evenly over sand filter.
	Damaged Pipes	Any part of the piping that is crushed or deformed more than 20% or any other failure to the piping.	Pipe repaired or replaced.

No. 14 –Sand Filters (below ground/enclosed)

Below Ground Vault.	Sediment Accumulation on Sand Media Section	Sediment depth exceeds 1/2-inch.	No sediment deposits on sand filter section that which would impede permeability of the filter section.
	Sediment Accumulation in Pre-Settling Portion of Vault	Sediment accumulation in vault bottom exceeds the depth of the sediment zone plus 6-inches.	No sediment deposits in first chamber of vault.
	Trash/Debris Accumulation	Trash and debris accumulated in vault, or pipe inlet/outlet, floatables and non-floatables.	Trash and debris removed from vault and inlet/outlet piping.
	Sediment in Drain Pipes/Cleanouts	When drain pipes, cleanouts become full with sediment and/or debris.	Sediment and debris removed.
	Short Circuiting	When seepage/flow occurs along the vault walls and corners. Sand eroding near inflow area.	Sand filter media section re-laid and compacted along perimeter of vault to form a semi-seal. Erosion protection added to dissipate force of incoming flow and curtail erosion.
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired and/or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened, corrosion/deformation of cover. Maintenance person cannot remove cover using normal lifting pressure.	Cover repaired to proper working specifications or replaced.
	Ventilation	Ventilation area blocked or plugged	Blocking material removed or cleared from ventilation area. A specified % of the vault surface area must provide ventilation to the vault interior (see design specifications).
	Vault Structure Damaged; Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab.	Cracks wider than 1/2-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound.
		Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Baffles/Internal walls	Baffles or walls corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.

No. 14 –Sand Filters (below ground/enclosed)

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired to specifications, and is safe to use as determined by inspection personnel.

No. 15 – Stormfilter™ (leaf compost filter)

Below Ground Vault	Sediment Accumulation on Media.	Sediment depth exceeds 0.25-inches.	No sediment deposits which would impede permeability of the compost media.
	Sediment Accumulation in Vault	Sediment depth exceeds 6-inches in first chamber.	No sediment deposits in vault bottom of first chamber.
	Trash/Debris Accumulation	Trash and debris accumulated on compost filter bed.	Trash and debris removed from the compost filter bed.
	Sediment in Drain Pipes/Clean-Outs	When drain pipes, clean-outs, become full with sediment and/or debris.	Sediment and debris removed.
	Damaged Pipes	Any part of the pipes that are crushed or damaged due to corrosion and/or settlement.	Pipe repaired and/or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened; one person cannot open the cover using normal lifting pressure, corrosion/deformation of cover.	Cover repaired to proper working specifications or replaced.
	Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound.
		Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Baffles	Baffles corroding, cracking warping, and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired and meets specifications, and is safe to use as determined by inspection personnel.
Below Ground Cartridge Type	Compost Media	Drawdown of water through the media takes longer than 1 hour, and/or overflow occurs frequently.	Media cartridges replaced.
	Short Circuiting	Flows do not properly enter filter cartridges.	Filter cartridges replaced.

No. 16 – Baffle Oil/Water Separators (API Type)

General	Monitoring	Inspection of discharge water for obvious signs of poor water quality.	Effluent discharge from vault should be clear with out thick visible sheen.
	Sediment Accumulation	Sediment depth in bottom of vault exceeds 6-inches in depth.	No sediment deposits on vault bottom that would impede flow through the vault and reduce separation efficiency.
	Trash and Debris Accumulation	Trash and debris accumulation in vault, or pipe inlet/outlet, floatables and non-floatables.	Trash and debris removed from vault, and inlet/outlet piping.
	Oil Accumulation	Oil accumulations that exceed 1-inch, at the surface of the water.	Extract oil from vault by vactoring. Disposal in accordance with state and local rules and regulations.
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened, corrosion/deformation of cover.	Cover repaired to proper working specifications or replaced.
	Vault Structure Damage - Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab	See “Catch Basins” (No. 5)	Vault replaced or repairs made so that vault meets design specifications and is structurally sound.
		Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired and meets specifications, and is safe to use as determined by inspection personnel.

No. 17 – Coalescing Plate Oil/Water Separators

General	Monitoring	Inspection of discharge water for obvious signs of poor water quality.	Effluent discharge from vault should be clear with no thick visible sheen.
	Sediment Accumulation	Sediment depth in bottom of vault exceeds 6-inches in depth and/or visible signs of sediment on plates.	No sediment deposits on vault bottom and plate media, which would impede flow through the vault and reduce separation efficiency.
	Trash and Debris Accumulation	Trash and debris accumulated in vault, or pipe inlet/outlet, floatables and non-floatables.	Trash and debris removed from vault, and inlet/outlet piping.
	Oil Accumulation	Oil accumulation that exceeds 1-inch at the water surface.	Oil is extracted from vault using vactoring methods. Coalescing plates are cleaned by thoroughly rinsing and flushing. Should be no visible oil depth on water.
	Damaged Coalescing Plates	Plate media broken, deformed, cracked and/or showing signs of failure.	A portion of the media pack or the entire plate pack is replaced depending on severity of failure.
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired and or replaced.
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Vault Structure Damage - Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound.
		Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired and meets specifications, and is safe to use as determined by inspection personnel.

No. 18 – Catchbasin Inserts

General	Sediment Accumulation	When sediment forms a cap over the insert media of the insert and/or unit.	No sediment cap on the insert media and its unit.
	Trash and Debris Accumulation	Trash and debris accumulates on insert unit creating a blockage/restriction.	Trash and debris removed from insert unit. Runoff freely flows into catch basin.
	Media Insert Not Removing Oil	Effluent water from media insert has a visible sheen.	Effluent water from media insert is free of oils and has no visible sheen.
	Media Insert Water Saturated	Catch basin insert is saturated with water and no longer has the capacity to absorb.	Remove and replace media insert
	Media Insert-Oil Saturated	Media oil saturated due to petroleum spill that drains into catch basin.	Remove and replace media insert.
	Media Insert Use Beyond Normal Product Life	Media has been used beyond the typical average life of media insert product.	Remove and replace media at regular intervals, depending on insert product.

Utilities Department Standard Operating Procedure

City of Bellevue, WA

Title:

Beaver Intervention by Utilities

Responsible Division: O&M

Point of Contact: Surface Water Superintendent

Category: Operations

Frequency: As Needed

Applicable Accreditation Chapter:

Approved Date: 2/28/2002

Last Review: 5/1/2009

Next Review: 5/1/2012

Applicable Divisions (Click all that apply):

☐ Entire Department ☐ Director's Office ☐ Engineering ☑ O&M ☐ RMCS

Applicable Sections (Skip this section if SOP is applicable to entire department):

O&M Sections (Click all that apply):

- ☐ Administration
- ☐ Streets
- ☐ Telemetry
- ☐ Water
- ☐ Water Quality
- ☐ Emergency Operations
- ☑ Surface Water
- ☐ Projects and Programs
- ☐ Wastewater

Purpose:

This SOP is to define appropriate response to reports of beavers causing problems. The presence of beavers is generally regarded as a sign of a healthy natural environment. However, there are locations where allowing the population of beaver to grow and build dams could cause a threat to infrastructure, listed salmon, and/or public safety. When beaver related issues arise, the following procedures are to be followed:

The criteria used to determine if a Utility response is necessary are:

- Existing or potential culvert blockage, roadway or structure flooding.
- Significant migration blockage of Chinook salmon or other listed species to spawning habitat. A significant migration blockage is defined as the presence of migratory fish below the dam and not above due to the dam acting as a barrier to upstream navigation. Typically, these dams are greater than 3-4 feet in height and have no side channels during high flow.

NOTE: Fish passage blockages associated with beaver activity usually occur where the natural stream channel

1. has been constrained and is limited in width from human activities. Constrained stream channels are usually limited on one or both sides of the stream by structures, fill, roadways, landscaping, down-cut channels, or other constructed constraints.
2. flows through a very low gradient and wide floodplain area with no side channels formed around the dam.

Criteria for Problem Identification

When a call or a report of a beaver dam is received the following steps are taken by the section receiving the call/report:

- Identify location of problem and property address. if a dam is present, document the location and report the location to the Superintendent for insertion into GIS.
- Determine if structures or roadways are at risk of flooding, and if those locations are public or privately owned.
- Determine if Chinook or other listed species migration routes are potentially being blocked. A map is available showing the normal distribution of spawning Chinook in Bellevue streams. If there is a potential fish passage blockage, contact the Environmental Scientist to determine if there is sufficient upstream habitat to warrant intervention.
- Determine if the public is in danger of falling trees from beaver damage close to trails, buildings or roads.
- Determine the potential for damage of public and private trees. If damages have occurred, identify the owner and attempt to notify of the situation. Share information with the owner appropriate for protecting trees (i.e. using wire mesh around the trunk, building a fence around the tree(s).

NOTE: Ponding of water in yards or other natural areas is not considered sufficient for intervention. If there is any question about whether there is an impact to salmon migration that should be addressed, the staff should contact the Environmental Scientist for assistance.

Criteria for Staff Assignments

To determine if action is needed, check the following table:

Beaver Dam Location	Impacted Location	Lead
Public	Public or Private	City - Operations & Maintenance
Private	Public	City - Operations & Maintenance
Private	Private	Private (see note below)

When a beaver dam is on private property and only affecting private property, information and advice should be shared with the property owner to assist with the permit acquisition process and to inform the property owner of other information and considerations that they should be aware of such as fish passage, potential flooding, etc.

Procedures:

-
    - Conduct a site visit to assess the situation and map all locations of Beaver activity.
    - Call the Washington Department of Fish and Wildlife (WDFW) to inform them of the location and the situation.
    - Contact the Environmental Scientist to report and discuss situations with Chinook salmon or other listed species migration blockages.
- Determine the best method for resolving the situation (dam breaching, side channel creation, leveler installation, deceiver installation, trapping or no action)
- If breaching of the beaver dam or installation of a leveler and/or deceiver is required to reduce flooding or restore fish passage, obtain Hydraulic Project Approval (HPA).

Dam Breaching

- Set up stream bypass and erosion control devices as needed to prevent downstream surging of sediments.
- Examine the dam for any safety hazard that may occur during the breaching process (i.e. sharp sticks angled towards a fall area) and reasonably eliminate all hazards before any further work is conducted.
- Breach the dam by carefully removing the pieces of debris from the dam down to a level that is sufficient to reduce flooding or allow fish passage. Remove debris evenly from the top of the dam by hand or with the use of hand powered tools only. Should heavy equipment be necessary to breach a dam, contact the Superintendent first to discuss the situation.
- After all other in-stream work has been completed, slowly remove bypass and erosion control measures to avoid unnecessary turbidity from entering the stream. Monitor the dam as needed to inspect for rapid rebuilding of the dam. If Beavers are active in the area, it is likely that rebuilding of the dam may occur. If rebuilding occurs, other treatment options may be necessary.

Pond Leveler Installation (refer to attached file)

Pond levelers are pipes placed under and through the dam to lower upstream water levels and prevent the dam form being built higher.

- Pond levelers come in many forms, can be pre-assembled off site or assembled in place. Check with your Supervisor to choose a design of leveler that will be most effective for the situation.
- Gather all necessary supplies and stage at the site. It is important that once the installation process begins that it be finished within a reasonable timeframe to avoid dam reconstruction and/or damage to the installation process.
- Set up stream bypass and erosion control devices as needed to prevent downstream surging of sediments.
- Examine the dam for any safety hazard that may occur during the breaching process (i.e. sharp sticks angled towards a fall area) and reasonably eliminate all hazards before any further work is conducted.

- Breach a portion of the dam by carefully removing the pieces of debris down to a level near the base of the existing dam for installation of PVC through pipe. The size of the breach will vary depending on the size of the pipe used.
- Place the through pipe in the breached area trying to avoid placing any pipe joints under the area where the dam is to be rebuilt.
- Install pipe extensions as necessary upstream and downstream to position the intake and outfall where both can be fully submerged throughout the year. A maximum pipe length of 25 feet should be observed to promote fish passage.
- Install the intake and wire to the bottom of the pond with rebar and wire ties. Ensure that all of the intake device is below the average water line to promote fish passage.
- After all other in-stream work has been completed, slowly remove bypass and erosion control measures to avoid unnecessary turbidity from entering the stream. Either put the dam back together or allow the Beavers to rebuild over the top of the leveler if the water is flowing over the pipe. Monitor the leveler on a regular basis to ensure it is functioning correctly.
- Regular maintenance of the Leveler will need to be performed to ensure that fish passage remains open. Maintenance will be triggered as needed by inspection and as needed after each storm event following an inspection. This is expected to be a requirement of the WDFW HPA.

Deceivers

- Deceivers are to be used at culvert or structure openings where Beaver activity has blocked flow into the structure near where Beaver activity will be allowed.
- Deceivers can be made of many different materials, shapes and sizes. Determine the best choice to protect the structure and provide adequate flow.
- Gather all necessary supplies and stage at the site; it is important that once the installation process begins that it be finished within the work day to avoid overnight dam reconstruction and/or damage to the installation process.
- Set up stream bypass and erosion control devices as needed to prevent downstream surging of sediments.
- Examine the dam for any safety hazard that may occur during the breaching process (i.e. sharp sticks angled towards a fall area) and reasonably eliminate all hazards before any further work is conducted.
- Slowly breach the dam by hand from above or with the use of machinery to the extent necessary to install the deceiver. Minimize all turbidity from entering the stream during this process.
- Install the deceiver around the structure such that there are no gaps where the Beavers can get inside the deceiver area and in a shape that does not allow blockage.
- Remove the bypass and erosion control measures. Monitor the deceiver site on a regular basis to ensure it is functioning correctly.
- Regular maintenance of the Deciever will need to be performed to ensure that fish passage

remains open. Maintenance will be triggered as needed by inspection and as needed after each storm event following an inspection. This is expected to be a requirement of the WDFW HPA.

Trapping:

- Contact a trapper, licensed to set up a contract to catch and relocate Beaver (if possible). A list of licensed trappers is maintained by enforcement office of WDFW at the Region 4 Office.
- Conduct a site visit with the trapper to evaluate the site.

  Note: the following steps may be required if the trapper is not prepared to inspect the trap site on a daily basis:

  - Check traps daily, including weekends and holidays, according to inspection procedures listed below. If the licensed trapper is not available on weekends, staff will be assigned the task of checking the trap(s) daily.
  - Check all traps after sunrise and before 8:00am daily.
  - If there are beavers in any trap, call the trapper immediately so they can be removed in a timely manner. Do not attempt to remove or disturb animals in the traps.
  - Record the time and findings of the trap inspection. If the Surface Water crew checks the trap, documentation will be on a work order created for the beaver removal activity and cost tracking.

- If community members or media raise concerns about intervention activities, contact the Utilities Public Information Officer immediately. He/she will determine appropriate media/community response.
- For more in-depth questions about salmon impacts or benefits, the Environmental Scientist will work with the Community Relations Specialist to respond.

Attachments:

Clemson Leveler.pdf Adobe Acrobat Document 104 KB	Deceiver.pdf Adobe Acrobat Document 1.35 MB	File Attachment
File Attachment	File Attachment	File Attachment
File Attachment	File Attachment	File Attachment
File Attachment	File Attachment	File Attachment

Revision History:

Revision Date	Revision By	Reason for Revision
3/1/2005	Pete Blane	Clarification of criteria for problem ider
5/7/2008	Pete Blane	Clarification of criteria for problem identification
5/1/2009	Don McQuilliams	Procedures for breaching dams and installation of levelers and deceivers.

Attachment F
Lake Hills Greenbelt Brushing

Legend

- Lake Hills Greenbelt Brushing Route
- Streams
- Parks
- ROW